

TRANSMITTAL OF APPEAL BRIEF (Large Entity)Docket No.
77682-236 /aba

In Re Application Of: Indranil B. Tapadar, et al

Application No.	Filing Date	Examiner	Customer No.	Group Art Unit	Confirmation No.
09/465,318	December 17, 1999	Abul K. Azad	07380	2564	8752

Invention: **METHOD AND APPARATUS FOR TRANSMITTING REAL-TIME DATA IN MULTI-ACCESS SYSTEMS**RECEIVED
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Page 1 of: 85

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SEP 27 2005

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE HONORABLE BOARD OF PATENT APPEALS

In re application of:)	
TAPADAR, Indranil B. et al)	
)	Group Art Unit: 2654
Serial No.: 09/465,318)	
)	Examiner: Abul K. Azad
Filed: December 17, 1999)	
)	Attorney Docket: 77682-236
For: METHOD AND APPARATUS FOR)	
TRANSMITTING REAL-TIME DATA IN)	
MULTI-ACCESS SYSTEMS)	

APPEAL BRIEF UNDER 37 C.F.R. 1.192

Board of Patent Appeals and Interferences

United States Patent and Trademark Office

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Alexandria, VA 22313-1450

Sir:

The following is the Appellant's Brief, submitted in triplicate and under the provisions of 37 C.F.R. 1.192. The fee of \$330 required by 37 C.F.R. 1.17(c) is enclosed.

Real Party in Interest

The real party in interest is the assignee of record, namely Nortel Networks Limited, 2351 Boulevard Alfred-Nobel, St. Laurent, Quebec, Canada, H4S 2A9.

Related Appeals and Interferences

There are no related appeals or interferences that will directly affect, be directly affected by or have a bearing on the present appeal.

Status of Claims

Claims 1-16, 18-29 and 31-44 stand finally rejected by the Examiner as noted in the

Office Action dated April 29, 2005. Claims 17 and 30 are cancelled. The rejection of claims 1-16, 18-29 and 31-44 is appealed.

Status of Amendments

No amendments were filed subsequent to the Final Action of April 29, 2005.

Summary of the Invention

According to a broad aspect, as recited by independent claim 1, the present application provides a method of transmitting in a multi-access system. According to the method, an information segment being generated in real-time is edited and buffered to compensate for transmission resource allocation delays before transmission of the information segment is started (see page 11, line 23 through page 12, line 2 with reference to Figures 2 and 3).

In some embodiments, as recited by dependent claim 7, buffering and editing comprises buffering and then editing (see page 3, lines 28-34).

In some embodiments, as recited by dependent claim 12, upon detecting the start of the information segment, transmission resources to transmit the information segment are immediately requested (see page 10, lines 4-8).

In some embodiments, as recited by dependent claim 15, before transmitting the second representation, the second representation is passed through a frame erasure concealment unit to prevent corruption (see page 12, lines 25-30, FEC 110 in Figure 3 and FEC 150 in Figure 5).

In some embodiments, as recited by dependent claim 18, the multi-access system is a multi-access wireless system (see page 6, lines 21-27).

In some embodiments, as recited by dependent claim 19, the information segment is transmitted from a mobile station to a base station (see page 10, lines 22-25).

In some embodiments, as recited by dependent claim 20, the transmission resources consist of one or more information channels (see page 7, lines 1-4).

In some embodiments, as recited by dependent claim 21, each information channel is a radio frequency (RF) channel (see page 7, lines 1-6).

In some embodiments, as recited by dependent claim 39, the method further comprises monitoring a state of a buffer containing the information segment or the first representation and performing the editing so that the buffer does not overflow (see page 15, lines 3-9).

In some embodiments, as recited by dependent claim 40, the method further comprises performing the editing at least long enough to compensate for a resource acquisition time (see page 15, lines 10-22).

In some embodiments, as recited by dependent claim 43, the method further comprises requesting the transmission resources from the multi-access system and receiving a resource allocation from the multi-access system after the resource allocation delays (see page 10, lines 4-9).

According to another broad aspect, as recited by independent claim 27, the present application provides an apparatus to transmit information in a multi-access system. The apparatus has an information detector operable to detect incoming information segments to transmit (see microphone 50 and ADC 52 in Figures 2, 3, and 5), an information editor operable to edit each information segment detected so as to produce a respective shortened information segment (see speech encoder 55 in Figures 2, 3, and 5), a buffer operable to buffer each shortened information segment until transmission resources are allocated to produce a buffered information segment (see buffer 108 in Figures 3 and 5), and a transmitter operable to transmit each buffered information segment (see tx 56 in Figure 2). The description provides an overview of the apparatus on page 11, line 23 through page 12, line 2 with reference to Figures 2 and 3.

In some embodiments, as recited by dependent claim 31, there is provided a wireless transmitter comprising the apparatus to transmit information in a multi-access system (see tx 56 in Figure 2).

In some embodiments, as recited by dependent claim 32, there is provided a mobile

station comprising the wireless transmitter (see Figure 2).

In some embodiments, as recited by dependent claim 41, the information editor is adapted to monitor the state of the buffer and adapt the edit of each information segment detected so that the buffer does not overflow (see page 15, lines 4-10).

In some embodiments, as recited by dependent claim 42, the information editor is adapted to operate at least long enough to compensate for a resource acquisition time at the mobile station (page 15, lines 16-19).

In some embodiments, as recited by dependent claim 44, the information editor is further adapted to request the transmission resources from the multi-access system, the transmission resources being allocated by the multi-access system after resource allocation delays (see page 10, lines 4-9).

Grounds of Rejection to be Reviewed on Appeal

A first ground of rejection to be reviewed on appeal is the ground outlined in paragraph 5 of the Final Action rejecting claims 1-6, 12-16, 22-29, 33-38 and 39-44 under 35 U.S.C. 103(a) as being unpatentable over United States Patent No. 5,436,899 (Fujino *et al.*) in view of United States Patent No. 5,793,744 (Kanerva *et al.*).

A second ground of rejection to be reviewed on appeal is the ground outlined in paragraph 6 of the Final Action rejecting claims 7-11 under 35 U.S.C. 103(a) as being unpatentable over the Fujino *et al.* reference in view of the Kanerva *et al.* reference, and further in view of the book entitled "Wireless Communications Principles and Practice" (Rappaport).

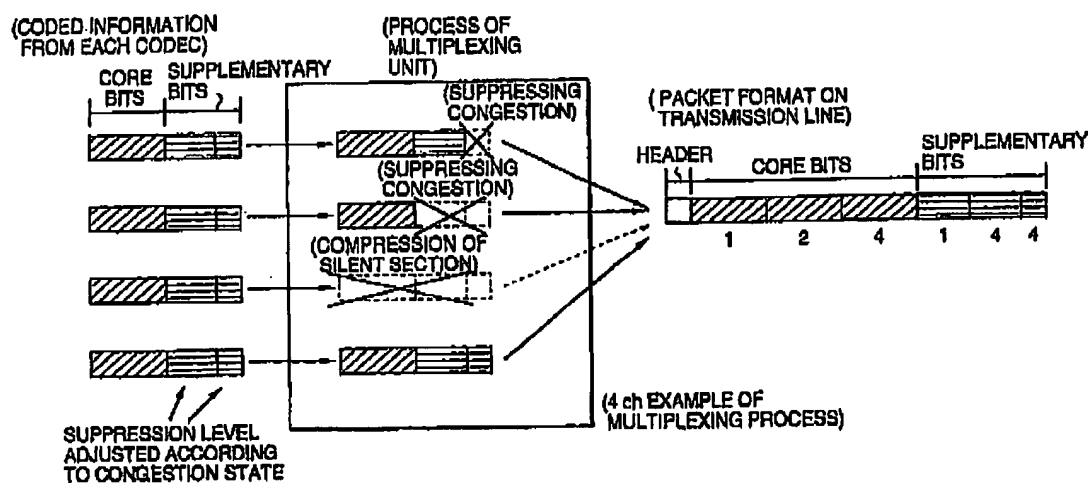
A third ground of rejection to be reviewed on appeal is the ground outlined in paragraph 7 of the Final Action rejecting claims 18-21 and 31-32 under 35 U.S.C. 103(a) as being unpatentable over the Fujino *et al.* reference in view of Applicant's admitted prior art (Figure 1).

Arguments

There are three requirements for establishing a *prima facie* case of obviousness: 1) all claimed elements must be present in the reference or references when combined; 2) there must be an expectation of a reasonable chance of success; and 3) there must be some suggestion or motivation in the prior art to combine the references. Applicant will show how these three requirements have not been satisfied in the rejections under appeal.

Because the Fujino reference is relied upon in all of the rejections, it is useful to have a good understanding of what it teaches generally. By way of overview, in the Fujino *et al.* reference a multiplexed transmission system is disclosed. The system takes multiple input signals, performs a multiplexing operation to produce an output signal that is more efficient in terms of bandwidth utilization etc. Figure 1 below, a reproduction of Figure 16B of Fujino, shows this quite clearly. There are a series of input signals from various CODECs shown on the left; these go into the multiplexing unit where silence compression etc. is performed to produce a multiplexed packet format for transmission in the right of the drawing. Figure 17 is another embodiment in which there is a six line interface 45 with four lines for voice and two lines for control as described in column 14, lines 47 to 63. Coding of the voice signals takes place in the coder 50 to produce coded data, AND to produce a second signal (R1 code in the Figure) that is used to indicate which portions of the coded signal can be dropped if necessary. The multiplexer 47 then multiplexes the multiple coded signals taking into account this information.

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Fig. 1 (Reproduction of Fig. 16B of Fujino *et al.*)

By way of overview, in the present application, embodiments of the invention are described in the context of a multi-access system in which multiple transmitters share transmission resources. Because there can be multiple transmitters contending for the same transmission resource, there can be delay in transmission resources being allocated. In order to accommodate this, buffering and editing is performed AT THE SOURCE of each signal such that when eventually the transmission resource is obtained, the edited version is sent, such that clipping that would otherwise have occurred at the beginning can be avoided.

Figure 2 below, a reproduction of Figure 1 of Applicants' disclosure, shows a very particular example of a multi-access system. This is described on pages 7 and 8 of Applicant's disclosure. A mobile station requests an allocation of transmission resources before it can transmit on a transmission resource. At the start of a speech segment, the mobile station will not have any resources allocated because resources are not allocated during periods of inactivity. Thus, there is a delay that is experienced. In conventional systems, this led to clipping.

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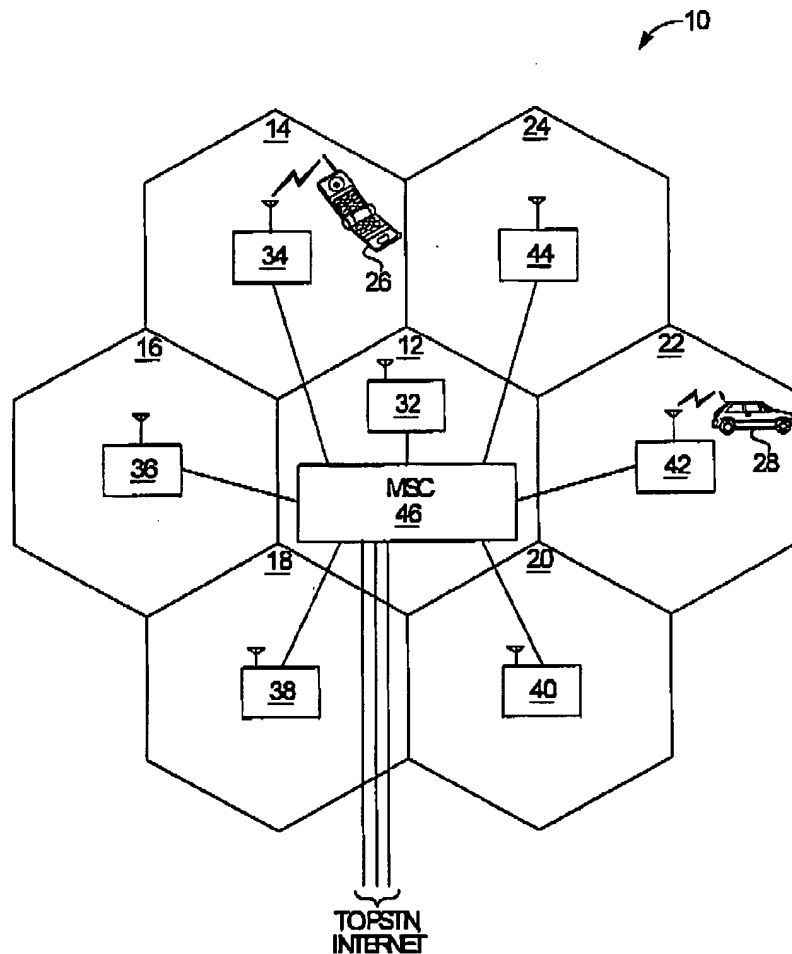


Fig. 2 (reproduction of Figure 1 of subject application)

Regarding the Kanerva *et al.* reference, this reference relates to high-speed multi-channel data services (HSCSD) on a radio interface of a mobile communication system. In particular, the Kanerva *et al.* reference discloses transmission of frames of a radio link protocol (RLP) selectively using as few subchannels as possible to support the current data rate. With reference to col 9 lines 1-41, the basic approach taught involves:

- 1) amount of input data is monitored (col. 9 line 14);
- 2) determine average data rate; (line 19)

3) can data rate be supported on two sub-channels? (line 21)

4) if not, transmit using all three sub-channels (line 24)

5) If so, transmit using two sub-channels, and transmit L2 fill frames on 3rd sub-channel according to GSM recommendation 04.06 item 5.4.2.3 (lines 35-41).

In summary, there is no editing and buffering of data to be transmitted; rather, the entire data is transmitted, but the number of channels used is adjusted up or down.

First Ground of Rejection

In paragraph 5 of the Final Action, the Examiner has rejected 1-6, 12-16, 22-29, 33-38 and 39-44 under 35 U.S.C. 103(a) as being unpatentable over United States Patent No. 5,436,899 (Fujino *et al.*) in view of United States Patent No. 5,793,744 (Kanerva *et al.*). In response, Applicant respectfully traverses the Examiner's rejection of claims rejected 1-6, 12-16, 22-29, 33-38 and 39-44 for at least the reasons outlined below.

Claim 1

The following analysis demonstrates that the Examiner has not established a *prima facie* case of obviousness in respect of claim 1.

Claim 1 - all claimed elements must be present in the reference or references when combined

Claim 1 is directed a method of transmitting in a multi-access system, and recites:

"detecting the start of an information segment being generated in real-time".

The Examiner has referred to element 51 (VDET) or Figure 17 of the Fujino *et al.* reference as disclosure for the above claim feature. The Examiner states "here the voice detector detects voice as the start of information segments at real time, because the communication takes place in real time". In column 14, lines 61 to 62 of the Fujino *et al.* reference element 51 is used for detecting silent sections by using an output from an AD (Analog-to-Digital) converting part 49. With respect, only silent sections are detected in the multiplex system of Fujino *et al.*. There is no disclosure of any detection of a start of an

information segment as in the case of a multi-access system. In particular, Applicant submits that detecting silent sections does not equate to detection of a start of an information segment. For example, in the case when two consecutive silent sections are detected, the detection of the first silent section does not imply the detection of the start of an information segment. Instead, in this case what comes next is another silent section.

Furthermore, the VAD taking place in Fujino is taking place after receipt from a remote source. See Figures 16B, 17 that show multiple signals being processed by the multiplexing device. Thus, there is no detection of the start of an information segment being generated in real-time. Rather the information segments are remotely generated, transmitted to the multiplexer, and processed there for multiplexing purposes.

Claim 1 also recites:

“editing and buffering the information segment or a first representation thereof to produce a second representation”

The Examiner has referred to columns 13, lines 18 to 36; and column 25, lines 12 to 48 of the Fujino *et al.* reference as disclosure for this claim feature. The portions referred to by the Examiner contain some description of Figure 1 above (i.e. Figure 16B of Fujino). The input signals are processed to identify core bits and supplementary bits. All of these bits are used in the multiplexer. More specifically, Col. 13 lines 38 to 42 reads: “The suppression of supplementary bits are arbitrated according to congestion level. The supplementary bits of channel 2 are not transmitted at all, but the supplementary bits of channels 1 and 4 are transmitted.”

The claim continues with:

“after transmission resources have been allocated, starting to transmit the second representation”

The Examiner has conceded that this is not taught in Fujino, and relies on Kanerva as teaching this feature. As discussed above, with regard to the Kanerva *et al.* reference, as discussed above what is being allocated are subchannels; however, there is no disclosure of

any editing and buffering being done to compensate for allocation delays in providing the subchannels. Rather, the number of subchannels used is adjusted/minimized. There is no "second representation that is produced", and transmitted after resource allocation. The entirety of the input signal is transmitted, be it on a reduced, or increased number of subchannels.

Claim 1 continues with:

"wherein the editing and buffering is done to compensate for transmission resource allocation delays".

As indicated above, the Examiner has conceded that Fujino does not involve waiting for transmission resources to be allocated before starting to transmit. With such a concession, it is difficult to see how the editing and buffering can possibly be performed for the purpose of compensating for transmission resource allocation delays. The Examiner refers to Col. 34 lines 46-65. It is difficult at best to Figure out what this passage is teaching. The fact that multiplexing can reduce delay is not the same as compensating for resource allocation delays. There not a single reference in Fujino to resource allocation delay being a problem – that is because multiplexing is being performed on complete signals – signals that were received over dedicated channels for example. The Fujino *et al.* reference has nothing to do with transmission resource allocation and therefore has nothing to do with compensating for transmission resource allocation delays.

On the basis of the above discussion, it can be seen that claimed features are missing from the cited references, and as such, requirement 1) for a *prima facie* case of obviousness is not satisfied.

Claim 1 – Motivation to Combine

The Examiner concedes that 'Fujino does not explicitly teach, "after transmission resources have been allocated, starting to transmit the second representation, in a multiple access system". However, the Examiner goes on to argue that 'Kanerva teaches "after transmission resources have been allocated, starting to transmit the second representation" (Abstract, col. [col.] 9, lines 1-41). Therefore, it would have been obvious to one of ordinary

skill in the art at the time of the invention to use Kanerva's teaching in the invention of Fujino because Kanerva teaches his invention introduce to reduce transmission power consumption, less temperature problems and simpler timing of reception (col. 4, lines 15-22)'.

With respect, in the Abstract and column 9, lines 1 to 41 of Kanerva there is no discussion or even remote suggestion as to an allocation of transmission resources. Rather, the transmitter decides how many subchannels are needed to support a specified average data rate. As detailed above, all of the data is transmitted, and only the number of subchannels employed is modified. As such, there is no second representation; rather the entire "first representation" is sent. As such, it is respectfully submitted Kanerva does not teach the limitation "after transmission resources have been allocated, starting to transmit the second representation".

Furthermore, even if Kanerva or some other reference taught the limitation "after transmission resources have been allocated, starting to transmit the second representation", Modifying the Fujino *et al.* reference to introduce this feature does not provide the advantages referred to by the Examiner which are to "reduce transmission power consumption, less temperature problems and simpler timing of reception". Those are advantages introduced when using only a subset of an available set of subchannels – in other words the specific problem Kanerva is addressing. In other words, the Examiner is suggesting a modification to the Fujino *et al.* reference stating advantages as motivation to combine the references; however, the modifications proposed do not bring about the advantages stated.

Furthermore, the Fujino *et al.* and the Kanerva *et al.* references solve completely different problems from each other and from the present invention as claimed in claim 1. Fujino is performing multiplexing to get more throughput on a channel, whereas Kanerva is performing subchannel selection to reduce bandwidth requirements, save power etc. Neither of these hint at any solution to the problem being addressed in the subject application, namely dealing with resource allocation delay. In particular, the problem of resource allocation delay does not exist in Fujino (or Kanerva) so there is no motivation to solve this problem.

As outlined in the MPEP 2413.01, motivation to combine can come from three sources: the nature of the problem to be solved – in this case entirely different and unrelated; the teachings of the prior art – in this case neither reference refers to the other; knowledge of one of ordinary skill in the art. None of these three sources apply here.

For at least the aforementioned reasons, Applicant submits that claim 1 is patentable over the Fujino *et al.* reference in view of the Kanerva *et al.* reference. The Board of Patent Appeals and Interferences is respectfully requested to reconsider and withdraw the rejection under 35 U.S.C. 103(a) against claim 1.

Claims 2 to 6, 13, 14, and 22 to 24

Each one of claims 2 to 6, 13, 14, and 22 to 24 depends directly or indirectly on claim 1 and should be allowed for the same reasons as discussed above with reference to claim 1.

The Board of Patent Appeals and Interferences is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claims 2 to 6, 13, 14, and 22 to 24.

Claim 12

Claim 12 depends on claim 1 and should be allowed for the same reasons as discussed above with reference to claim 1. Furthermore, claim 12 recites:

“upon detecting the start of the information segment, the method further comprises immediately requesting transmission resources to transmit the information segment”.

The Examiner has referred to column 14, lines 47 to 62 of Fujino *et al.* as disclosure for this claim feature. More particularly, the Examiner states that this passage ‘reads on “a call detector (CDET) 46 for detecting a call through monitoring by SS (Signal-Send) and SR (Signal-Receive) signals”’. With respect, this passage referred to by the Examiner discloses the structure of the apparatus of Figure 17, and Applicant submits that there is no disclosure of “upon detecting the start of the information segment, immediately requesting transmission resources to transmit the information segment”. In particular, as indicated by the Examiner the call detector 46 is used for detecting a call through monitoring by SS and SR signals. With respect, this is not the same as “upon detecting the start of the information segment,

requesting transmission resources to transmit the information segment". Furthermore, as discussed above with reference to claim 1, in Fujino *et al.* there is no disclosure or considerations of transmission resources.

The Board of Patent Appeals and Interferences is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claim 12.

Claim 15

Claim 15 depends on claim 1 and should be allowed for the same reasons as discussed above with reference to claim 1. Furthermore, claim 15 recites:

"before transmitting the second representation, the method further comprises passing the second representation through a frame erasure concealment unit to prevent corruption".

The Examiner has referred to column 13, lines 18 to 36 of the Fujino *et al.* reference as disclosure for this claim feature and states "discarding supplementary bits necessarily deteriorates sound quality, but permits transmission of core bits, thus ensuring the minimum sound quality provided by core bits".

The discarding step referred to by the Examiner forms part of a multiplexing process described in column 13, lines 18 to 36 of the Fujino *et al.* reference. With respect, the Examiner has already referred to this passage (the multiplexing process) for the editing and buffering step of base claim 1 which is to produce a second representation. The Examiner is now using the same step as disclosure for "passing the second representation through a frame erasure concealment unit to prevent corruption". With respect, Applicant submits that it makes no sense to refer to the same step for: 1) producing a second representation; and 2) and passing the second representation through a frame erasure concealment unit as these are two distinct steps.

The Board of Patent Appeals and Interferences is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claim 15.

Claim 16

Claim 16 depends on claim 15 and should be allowed for the same reasons as discussed above with reference to claim 15.

The Board of Patent Appeals and Interferences is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claim 16.

Claim 25

Claim 25 depends on claim 24 and should be allowed for the same reasons as discussed above with reference to claim 24. Furthermore, claim 25 should also be allowed for the same reasons as discussed above with reference to claim 15.

The Board of Patent Appeals and Interferences is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claim 25.

Claim 26

Claim 26 depends on claim 25 and should be allowed for the same reasons as discussed above with reference to claim 25.

The Board of Patent Appeals and Interferences is respectfully requested to withdraw the 35 U.S.C. 102(b) rejection of claim 26.

Claim 27

The following analysis demonstrates that the Examiner has not established a *prima facie* case of obviousness in respect of claim 27.

Claim 27 is directed to an apparatus to transmit information in a multi-access system, and recites, among other features:

“a buffer operable to buffer each shortened information segment until transmission resources are allocated to produce a buffered information segment”.

As discussed above with reference to claim 1, in the cited references there is no

concept of resource allocation delays. In fact, in the cited references there is no disclosure of any waiting for allocation of resources. As such, there is no disclosure of "a buffer operable to buffer each shortened information segment until transmission resources are allocated". As such, the requirement that the reference or references when combined teach all of the claim limitations is not satisfied

Regarding the requirement to establish a motivation to combine, as discussed in detail above, the Examiner has failed to establish a motivation to combine Fujino and Kanerva. Thus, it is respectfully submitted that the requirements for a *prima facie* case of obviousness have not been satisfied in the rejection of claim 27.

The Board of Patent Appeals and Interferences is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claim 27.

Claims 28, 29, and 33 to 38

Each one of claims 28, 29, and 33 to 38 depends directly or indirectly on claim 27 and should be allowed for the same reasons as discussed above with reference to claim 27. The Board of Patent Appeals and Interferences is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claims 28, 29, and 33 to 38.

Claim 39

Claim 39 depends on claim 1 and should be allowed for the same reasons as discussed above with reference to claim 1. Furthermore, claim 39 recites:

"monitoring a state of a buffer containing the information segment or the first representation and performing the editing so that the buffer does not overflow".

The Examiner has referred to a buffer RAM (Random Access Memory) of Figure 59A of the Fujino *et al.* reference as disclosure for the above claim feature. The Examiner has simply identified a buffer in Figure 59A; however, the Examiner has not identified any text in the Fujino *et al.* reference indicating "monitoring a state of a buffer containing the information segment or the first representation and performing the editing so that the buffer does not overflow". In particular, the description of Figure 59A is given in column 35, lines

4 to 30 of the Fujino *et al.* reference and there is no such disclosure in that passage.

The Board of Patent Appeals and Interferences is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claim 39.

Claim 40

Claim 40 depends on claim 1 and should be allowed for the same reasons as discussed above with reference to claim 1. Furthermore, claim 40 recites:

“performing the editing at least long enough to compensate for a resource acquisition time”.

The Examiner has referred to column 7, lines 43 to 51 of the Fujino *et al.* reference as disclosure for this claim feature. With respect, this passage discloses how “only side information in a core information part is transmitted for silent sections, while total data including the supplementary information part are transmitted for speech sections. During discarding because of congestion, lighter bits in the supplementary information part are sequentially discarded, thus improving the communication efficiency and permitting compressed transmission of various control data”.

With respect, the discarding referred to in this passage is not disclosed as discarding to compensate for a resource acquisition time. As such, the passage referred to by the Examiner does not disclose the above claim feature.

The Board of Patent Appeals and Interferences is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claim 40.

Claim 43

Claim 43 depends on claim 1 and should be allowed for the same reasons as discussed above with reference to claim 1. Furthermore, claim 43 recites:

“requesting the transmission resources from the multi-access system and receiving a resource allocation from the multi-access system after the resource allocation delays”.

The Examiner has referred to column 6, lines 1 to 25 of the Kanerva *et al.* reference as disclosure for this claim feature. With respect, this passage refers to how in a system, "the data link is established between a mobile station (MS) network terminal TAF (Terminal Adaptation Function) 31 and a network adapter IWF (Interworking Function) 41 (see Figure 1 of the Kanerva *et al.* reference) in the fixed network. The data link is a circuit-switch connection which reserves one (or more) traffic channel(s) from the radio interface for a duration of a connection".

In particular, what are being reserved here are traffic channels and there is no reference to any resource allocation delays. As such, there is no disclosure of any requesting the transmission resources from the multi-access system and receiving a resource allocation from the multi-access system "after the resource allocation delays" [emphasis added]. Instead, the traffic channels are either all used or a subset of the traffic channels is used.

The Board of Patent Appeals and Interferences is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claim 43.

Claims 41, 42, and 44

Claims 41, 42, and 44 each depend indirectly upon claim 27 and should be allowed for the same reasons as discussed above with reference to claim 27. Applicant notes that the Examiner has cited both the Fujino *et al.* reference and the Kanerva *et al.* reference against independent claim 27, but has only cited the Fujino *et al.* reference and Applicant's admitted prior art against claim 32 (see paragraph 7 of the Office Action). Since the Examiner has not cited the Kanerva *et al.* reference against claim 32, Applicant submits that the Examiner's rejection of claim 32 is inappropriate. Furthermore, since claims 41, 42, and 44 depend on claim 32 and the Examiner has not cited Applicant's admitted prior art against claims 41, 42, and 44, Applicant submits that the Examiner's rejection of claims 41, 42, and 44 is inappropriate.

The Examiner is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claims 41, 42, and 44.

Second Ground of Rejection

In paragraph 6 of the Detailed Action, the Examiner has rejected claims 7-11 under 35 U.S.C. 103(a) as being unpatentable over the Fujino *et al.* reference in view of the Kanerva *et al.* reference, and further in view of the book entitled "Wireless Communications Principles and Practice" (Rappaport). In response, Applicant respectfully submits that claims 7-11 are patentable over the Fujino *et al.* reference in view of the Kanerva *et al.* reference, and further in view of Rappaport for at least their dependence upon claim 1. Furthermore, Applicant submits additional arguments in favour of the patentability of claims 7-11 as outlined below.

Claim 7

Applicant has argued above that the Fujino *et al.* and Kanerva *et al.* references do not disclose all of the features of base claim 1. Applicant submits that the Rappaport reference fails to disclose the features of base claim 1 that the Fujino *et al.* and Kanerva *et al.* references fail to disclose. Therefore, Applicant submits that the *prima facie* obviousness requirement that the references teach all of the claimed limitations has not been satisfied in respect of claim 7.

Regarding the *prima facie* obviousness requirement for motivation to combine, as discussed above with reference to claim 1, claim 1 recites "editing and buffering...to produce a second representation, and claim 7 recites:

"wherein the buffering and editing comprises buffering and then editing".

In the Fujino *et al.* reference it makes no sense to perform the buffering step referred to by the Examiner and then perform the editing step referred to by the Examiner. In particular, in his rejection of claim 1 the Examiner has referred to element 140 in which there is a speed difference absorption buffer 142 for the buffering step (see Figure 35 of the Fujino *et al.* reference). As shown in Figure 36 of the Fujino *et al.* reference, the buffering is provided by the speed difference absorption buffer 142 which, as discussed above, is used as a transmission holding buffer. In particular, as disclosed in column 25, lines 36 to 42 the speed difference absorption buffer 142 absorbs a difference between multiplexed frames

inputted at speed V_1 from a multiplexer side and a transmission speed V_2 to a packet network side. Applicant submits that there is no disclosure of a buffer operable to buffer each shortened information segment until transmission resources are allocated to produce a buffered information segment, for the same reasons as discussed above with reference to claim 1. With respect, modifying the Fujino *et al.* reference to apply the speed difference absorption buffer 142 before any editing simply makes no sense as there would be no existing multiplexed frames. As such, buffering and then editing requires a modification to the Fujino *et al.* reference that renders the system of Fujino *et al.* unworkable and therefore teaches away from the Fujino *et al.* reference. Under section "2142.01 Suggestion or motivation to Modify References [R-1]" of the Manual of Patent Examining Procedure (MPEP), a "proposed modification cannot change the principle of operation of a reference". Applicant submits that the Examiner has not complied with this requirement for at least the aforementioned reasons. Therefore, the motivation to combine requirement for a *prima facie* case of obviousness is not satisfied.

Thus, none of the requirements for a *prima facie* case of obviousness are satisfied.

The Board of Patent Appeals and Interferences is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claim 7.

Claims 8 to 11

Claims 8 to 11 each depend directly or indirectly on claim 7 and should be allowed for the same reasons as discussed above with reference to claim 7. The Board of Patent Appeals and Interferences is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claims 8 to 11.

Third Ground of Rejection

In paragraph 7 of the Detailed Action, the Examiner has rejected claims 18-21 and 31-32 under 35 U.S.C. 103(a) as being unpatentable over the Fujino *et al.* reference in view of Applicant's admitted prior art (Figure 1). In response, Applicant respectfully submits that claims 18-21 and 31-32 are patentable over the Fujino *et al.* reference in view of Applicant's admitted prior art (Figure 1) for at least their dependence upon one of claims 1

and 27. Furthermore, Applicant submits additional arguments in favour of the patentability of claims 18-21 and 31-32 as outlined below.

To begin, it is noted that in Applicant's response dated February 19, Applicant argued against Figure 1 and Figure 2 being Applicant admitted prior art. In subsequent Office Actions the Examiner has failed to recognize this. Thus, at the outset, the combination is improper since one of the two references is not in fact prior art.

In the discussion that follows, reference will be made to Applicant admitted prior art (Figure 1) (hereinafter referred to as AAPA) for convenience, but it is to be understood that Applicant does not admit to this being prior art.

1) Features of Claims 18-21 and 31-32

Applicant respectfully submits that the teachings of the Fujino *et al.* reference together with the teachings of AAPA does not teach all claim limitations of any of claims 18-21 and 31-32 for at least their dependence upon on one of claims 1 and 27. Furthermore, Applicant submits that the rejection of claims 18 to 21 and 31 to 32 is inappropriate. Applicant notes that each one of claims 18 to 21 and 31 to 32 depends directly or indirectly on one of claims 1 and 27. Applicant notes that the Examiner has cited both the Fujino *et al.* reference and the Kanerva *et al.* reference against base claims 1 and 27, but does not cite the Kanerva *et al.* reference against dependent claims 18 to 21 and 31 to 32. For at least this reason, Applicant submits that the Examiner's rejection of claims 18 to 21 and 31 to 32 is inappropriate. Furthermore, the Examiner has admitted that not all of the claim features of base claims 1 and 27 are found in the Fujino *et al.* reference and Applicant submits that these features are also not disclosed in AAPA .

For at least the aforementioned reasons, Applicant submits that the first requirement for establishing a prima facie case of obviousness has not been met.

3) Motivation to combine references

Applicant submits that the Examiner has not established motivation for combining the Fujino *et al.* reference and AAPA . The Examiner states that "it would have been obvious to

one of ordinary skill in the art at the time of the invention to adapt a wireless telecommunication for sending information from a mobile station to base station using RF transmission channel known way because to achieve a mobility in the communication sector. It is respectfully submitted this statement does not provide the required motivation to combine. Furthermore, it is submitted that there is no motivation to combine for at least the reasons detailed below.

It is well established that motivation to combine can come from: the references themselves, the problem being solved, or the knowledge of the person skilled in the art. In this case, the references do not refer to each other so motivation to combine does not come from the references themselves. A completely different problem is being addressed. The Applicant's admitted prior art only discusses a multi-access cellular wireless network. Fujino discussed optimizing multiplexing over a link. There is absolutely no commonality in the problem being solved. As for the knowledge of one skilled in the art, the Examiner has not established that a person trying to deal with resource allocation delay in a multi-access system would also be aware of link multiplexing techniques.

Applicant submits that there can be no motivation to combine the Fujino *et al.* reference and AAPA, as such a combination requires significant modification to their teachings. Referring to Section "2142.01 Suggestion or motivation to Modify References [R-1]" of the Manual of Patent Examining Procedure (MPEP), a "proposed modification cannot change the principle of operation of a reference". Applicant submits that the Examiner has not conformed to this for at least the reasons outlined below.

As previously discussed, Fujino teaches multiplexing to get more throughput on a channel. Multiplexing is performed by a multiplexing unit, such as the multiplexing unit shown in Figure 48, and is not performed at the source. Applicant's admitted prior art teaches a multi-access wireless system with reference to Figure 1. Each base station (see reference numbers 34, 36, 38, 40, 42, 44) may have many mobile stations within its respective cell for communication. In AAPA, multiplexing of signals received from the mobile stations could not be performed until receipt at the base station since until then the signals are physically separate. Multiplexing at the base station would not deal with the resource allocation delay problem experienced by mobile stations.

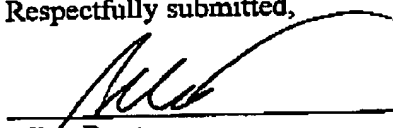
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For at least the aforementioned reasons, Applicant submits that claims 18-21 and 31-32 are patentable over the Fujino *et al.* reference in view of Applicant's admitted prior art. The Board of Patent Appeals and Interferences is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claims 18 to 21 and 31 to 32.

Favourable consideration and allowance of the application is respectfully requested.

Respectfully submitted,

By


Allan Brett
Registration No. 40,476
Smart & Biggar

Dated: September 27, 2005
Ottawa, Ontario, Canada
Tel: (613) 232-2486 ext. 323
RAB:PDB:kbc

Claims Appendix

1. A method of transmitting in a multi-access system comprising:

detecting the start of an information segment being generated in real-time;

editing and buffering the information segment or a first representation thereof to produce a second representation; and

after transmission resources have been allocated, starting to transmit the second representation;

wherein the editing and buffering is done to compensate for transmission resource allocation delays.
2. The method of claim 1 wherein editing and buffering comprises editing and then buffering.
3. The method of claim 2 wherein editing is done on the information segment to produce a shortened information segment.
4. The method of claim 2 wherein editing is done on the first representation which is a framed version of the information segment to produce a shortened information segment.
5. The method of claim 3 wherein buffering is done on the shortened information segment to produce the second representation.
6. The method of claim 3 wherein buffering is done on a frame version of the shortened information segment to produce the second representation.
7. The method of claim 1 wherein buffering and editing comprises buffering and then editing.
8. The method of claim 7 wherein buffering is done on the information segment to produce a buffered information segment.
9. The method of claim 7 wherein buffering is done on the first representation which is a

framed version of the information segment to produce a buffered information segment.

10. The method of claim 8 wherein editing is done on the buffered information segment to produce a shortened information segment.

11. The method of claim 8 wherein editing is done on the first representation which is a framed version of the buffered information segment to produce a shortened information segment.

12. The method of claim 1 wherein upon detecting the start of the information segment, the method further comprises immediately requesting transmission resources to transmit the information segment.

13. The method of claim 6 wherein editing the information segment to produce a shortened information segment comprises time compressing the information segment.

14. The method of claim 13 wherein time compressing the information segment comprises removing repetitions and/or short pauses present in the segment.

15. The method of claim 1 wherein before transmitting the second representation, the method further comprises passing the second representation through a frame erasure concealment unit to prevent corruption.

16. The method of claim 15 wherein before transmitting the second representation, the method further comprises placing the second representation in one or more packets for transmission.

18. The method of claim 1 wherein the multi-access system is a multi-access wireless system.

19. The method of claim 18 wherein the information segment is transmitted from a mobile station to a base station.

20. The method of claim 19 wherein the transmission resources consist of one or more information channels.

21. The method of claim 20 wherein each information channel is a radio frequency (RF) channel.
22. The method of claim 1 wherein the information segment is a speech segment.
23. The method of claim 4 wherein editing the framed version of the information segment to produce a shortened information segment comprises removing redundant frames.
24. The method of claim 23 wherein removing redundant frames comprises removing frames which contain repetitions and/or short pauses.
25. The method of claim 24 wherein before transmitting the second representation, the method further comprises passing the second representation through a frame erasure concealment unit to prevent corruption.
26. The method of claim 25 wherein before transmitting the second representation, the method further comprises placing the second representation in one or more packets for transmission.
27. An apparatus to transmit information in a multi-acces system, the apparatus comprising:
 - an information detector operable to detect incoming information segments to transmit;
 - an information editor operable to edit each information segment detected so as to produce a respective shortened information segment;
 - a buffer operable to buffer each shortened information segment until transmission resources are allocated to produce a buffered information segment; and
 - a transmitter operable to transmit each buffered information segment.
28. The apparatus of claim 27 wherein for editing each information segment detected so as to produce a respective shortened information segment, the information editor is operable to time compress each information segment.

29. The apparatus of claim 27 further comprising a coder connected to the information editor and operable to code each shortened information segment into a respective plurality of frames.
31. A wireless transmitter comprising the apparatus of claim 27.
32. A mobile station comprising the wireless transmitter of claim 31.
33. The apparatus of claim 27 wherein each information segment is a speech segment.
34. The apparatus of claim 33 wherein the information detector is a voice activity detector, the information editor is a speech pause/edit unit and the coder is a speech coder.
35. The apparatus of claim 34 further comprising a frame erasure concealment unit connected to receive each speech segment buffered and operable to prevent corruption before transmission.
36. The apparatus of claim 35 further comprising a protocol handler connected between the frame erasure concealment unit and the transmitter, the protocol handler being operable to place each speech segment buffered in one or more packets for transmission to a node.
37. The apparatus of claim 27 further comprising a coder operable to code each information segment detected into a respective plurality of frames.
38. The apparatus of claim 37 wherein for editing each information segment detected so as to produce a respective shortened information segment, the information editor is operable for each information segment to remove redundant frames from the respective plurality of frames.
39. A method according to claim 1 comprising monitoring a state of a buffer containing the information segment or the first representation and performing the editing so that the buffer does not overflow.
40. A method according to claim 1 comprising performing the editing at least long enough to compensate for a resource acquisition time.

41. A mobile station according to claim 32 wherein the information editor is adapted to monitor the state of the buffer and adapt the edit of each information segment detected so that the buffer does not overflow.

42. A mobile station according to claim 32 wherein the information editor is adapted to operate at least long enough to compensate for a resource acquisition time at the mobile station.

43. A method according to claim 1 comprising requesting the transmission resources from the multi-access system and receiving a resource allocation from the multi-access system after the resource allocation delays.

44. A mobile station according to claim 32 wherein the information editor is further adapted to request the transmission resources from the multi-access system, the transmission resources being allocated by the multi-access system after resource allocation delays.

Evidence Appendix

This appendix is empty, as there has been no evidence submitted pursuant to Sections. 1.130, 1.131, or 1.132 of 37 CFR.

Related Proceedings Appendix

This appendix is empty, as there are no related appeals or interferences that will directly affect, be directly affected by or have a bearing on the present appeal.

TRANSMITTAL OF APPEAL BRIEF (Large Entity)Docket No.
77682-236 /aba

In Re Application Of: Indranil B. Tapadar, et al

Application No.
09/465,318Filing Date
December 17, 1999Examiner
Abul K. AzadCustomer No.
07380Group Art Unit
2564Confirmation No.
8752Invention: **METHOD AND APPARATUS FOR TRANSMITTING REAL-TIME DATA IN MULTI-ACCESS SYSTEMS**RECEIVED
CENTRAL FAX CENTER

SEP 27 2005

COMMISSIONER FOR PATENTS:Transmitted herewith in triplicate is the Appeal Brief in this application, with respect to the Notice of Appeal filed on
July 27, 2005

The fee for filing this Appeal Brief is: \$500.00

- ☐ A check in the amount of the fee is enclosed.
- ☒ The Director has already been authorized to charge fees in this application to a Deposit Account.
- ☒ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. 19-2550
- ☐ Payment by credit card. Form PTO-2038 is attached.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.
Signature

Dated: September 27, 2005

R. Allan Brett
Registration No. 40,476

CUSTOMER NO. 07380

Tel.: 613-232-2486
CC:

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to "Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450" [37 CFR 1.8(a)] on

(Date)

Signature of Person Mailing Correspondence

Typed or Printed Name of Person Mailing Correspondence

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE HONORABLE BOARD OF PATENT APPEALS

In re application of:)	
TAPADAR, Indranil B. et al)	
)	Group Art Unit: 2654
Serial No.: 09/465,318)	
)	Examiner: Abul K. Azad
Filed: December 17, 1999)	
)	Attorney Docket: 77682-236
For: METHOD AND APPARATUS FOR)	
TRANSMITTING REAL-TIME DATA IN)	
MULTI-ACCESS SYSTEMS)	

APPEAL BRIEF UNDER 37 C.F.R. 1.192

Board of Patent Appeals and Interferences

United States Patent and Trademark Office

P.O. Box 1450

Alexandria, VA 22313-1450

Sir:

The following is the Appellant's Brief, submitted in triplicate and under the provisions of 37 C.F.R. 1.192. The fee of \$330 required by 37 C.F.R. 1.17(c) is enclosed.

Real Party in Interest

The real party in interest is the assignee of record, namely Nortel Networks Limited, 2351 Boulevard Alfred-Nobel, St. Laurent, Quebec, Canada, H4S 2A9.

Related Appeals and Interferences

There are no related appeals or interferences that will directly affect, be directly affected by or have a bearing on the present appeal.

Status of Claims

Claims 1-16, 18-29 and 31-44 stand finally rejected by the Examiner as noted in the

Office Action dated April 29, 2005. Claims 17 and 30 are cancelled. The rejection of claims 1-16, 18-29 and 31-44 is appealed.

Status of Amendments

No amendments were filed subsequent to the Final Action of April 29, 2005.

Summary of the Invention

According to a broad aspect, as recited by independent claim 1, the present application provides a method of transmitting in a multi-access system. According to the method, an information segment being generated in real-time is edited and buffered to compensate for transmission resource allocation delays before transmission of the information segment is started (see page 11, line 23 through page 12, line 2 with reference to Figures 2 and 3).

In some embodiments, as recited by dependent claim 7, buffering and editing comprises buffering and then editing (see page 3, lines 28-34).

In some embodiments, as recited by dependent claim 12, upon detecting the start of the information segment, transmission resources to transmit the information segment are immediately requested (see page 10, lines 4-8).

In some embodiments, as recited by dependent claim 15, before transmitting the second representation, the second representation is passed through a frame erasure concealment unit to prevent corruption (see page 12, lines 25-30, FEC 110 in Figure 3 and FEC 150 in Figure 5).

In some embodiments, as recited by dependent claim 18, the multi-access system is a multi-access wireless system (see page 6, lines 21-27).

In some embodiments, as recited by dependent claim 19, the information segment is transmitted from a mobile station to a base station (see page 10, lines 22-25).

In some embodiments, as recited by dependent claim 20, the transmission resources consist of one or more information channels (see page 7, lines 1-4).

In some embodiments, as recited by dependent claim 21, each information channel is a radio frequency (RF) channel (see page 7, lines 1-6).

In some embodiments, as recited by dependent claim 39, the method further comprises monitoring a state of a buffer containing the information segment or the first representation and performing the editing so that the buffer does not overflow (see page 15, lines 3-9).

In some embodiments, as recited by dependent claim 40, the method further comprises performing the editing at least long enough to compensate for a resource acquisition time (see page 15, lines 10-22).

In some embodiments, as recited by dependent claim 43, the method further comprises requesting the transmission resources from the multi-access system and receiving a resource allocation from the multi-access system after the resource allocation delays (see page 10, lines 4-9).

According to another broad aspect, as recited by independent claim 27, the present application provides an apparatus to transmit information in a multi-access system. The apparatus has an information detector operable to detect incoming information segments to transmit (see microphone 50 and ADC 52 in Figures 2, 3, and 5), an information editor operable to edit each information segment detected so as to produce a respective shortened information segment (see speech encoder 55 in Figures 2, 3, and 5), a buffer operable to buffer each shortened information segment until transmission resources are allocated to produce a buffered information segment (see buffer 108 in Figures 3 and 5), and a transmitter operable to transmit each buffered information segment (see tx 56 in Figure 2). The description provides an overview of the apparatus on page 11, line 23 through page 12, line 2 with reference to Figures 2 and 3.

In some embodiments, as recited by dependent claim 31, there is provided a wireless transmitter comprising the apparatus to transmit information in a multi-access system (see tx 56 in Figure 2).

In some embodiments, as recited by dependent claim 32, there is provided a mobile

station comprising the wireless transmitter (see Figure 2).

In some embodiments, as recited by dependent claim 41, the information editor is adapted to monitor the state of the buffer and adapt the edit of each information segment detected so that the buffer does not overflow (see page 15, lines 4-10).

In some embodiments, as recited by dependent claim 42, the information editor is adapted to operate at least long enough to compensate for a resource acquisition time at the mobile station (page 15, lines 16-19).

In some embodiments, as recited by dependent claim 44, the information editor is further adapted to request the transmission resources from the multi-access system, the transmission resources being allocated by the multi-access system after resource allocation delays (see page 10, lines 4-9).

Grounds of Rejection to be Reviewed on Appeal

A first ground of rejection to be reviewed on appeal is the ground outlined in paragraph 5 of the Final Action rejecting claims 1-6, 12-16, 22-29, 33-38 and 39-44 under 35 U.S.C. 103(a) as being unpatentable over United States Patent No. 5,436,899 (Fujino *et al.*) in view of United States Patent No. 5,793,744 (Kanerva *et al.*).

A second ground of rejection to be reviewed on appeal is the ground outlined in paragraph 6 of the Final Action rejecting claims 7-11 under 35 U.S.C. 103(a) as being unpatentable over the Fujino *et al.* reference in view of the Kanerva *et al.* reference, and further in view of the book entitled "Wireless Communications Principles and Practice" (Rappaport).

A third ground of rejection to be reviewed on appeal is the ground outlined in paragraph 7 of the Final Action rejecting claims 18-21 and 31-32 under 35 U.S.C. 103(a) as being unpatentable over the Fujino *et al.* reference in view of Applicant's admitted prior art (Figure 1).

Arguments

There are three requirements for establishing a *prima facie* case of obviousness: 1) all claimed elements must be present in the reference or references when combined; 2) there must be an expectation of a reasonable chance of success; and 3) there must be some suggestion or motivation in the prior art to combine the references. Applicant will show how these three requirements have not been satisfied in the rejections under appeal.

Because the Fujino reference is relied upon in all of the rejections, it is useful to have a good understanding of what it teaches generally. By way of overview, in the Fujino *et al.* reference a multiplexed transmission system is disclosed. The system takes multiple input signals, performs a multiplexing operation to produce an output signal that is more efficient in terms of bandwidth utilization etc. Figure 1 below, a reproduction of Figure 16B of Fujino, shows this quite clearly. There are a series of input signals from various CODECs shown on the left; these go into the multiplexing unit where silence compression etc. is performed to produce a multiplexed packet format for transmission in the right of the drawing. Figure 17 is another embodiment in which there is a six line interface 45 with four lines for voice and two lines for control as described in column 14, lines 47 to 63. Coding of the voice signals takes place in the coder 50 to produce coded data, AND to produce a second signal (R1 code in the Figure) that is used to indicate which portions of the coded signal can be dropped if necessary. The multiplexer 47 then multiplexes the multiple coded signals taking into account this information.

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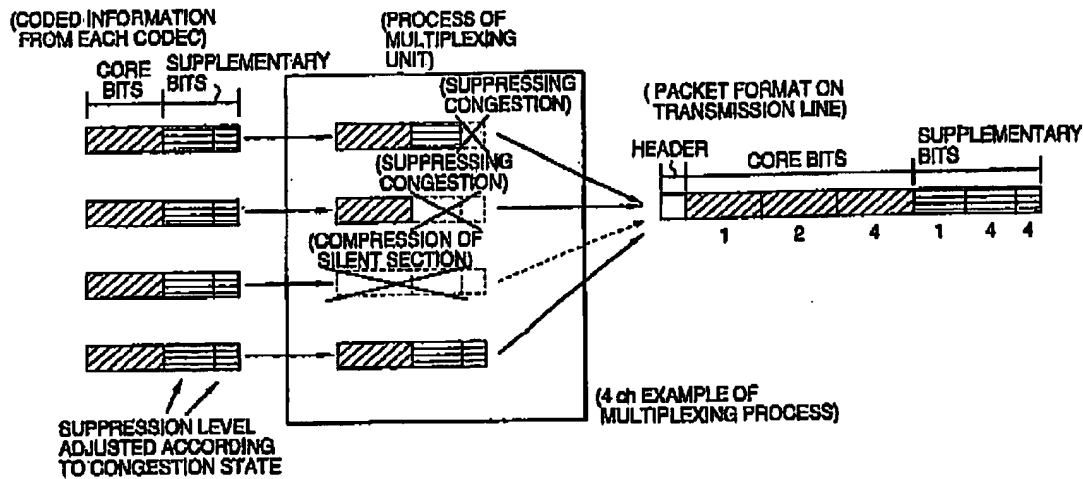


Fig. 1 (Reproduction of Fig. 16B of Fujino *et al.*)

By way of overview, in the present application, embodiments of the invention are described in the context of a multi-access system in which multiple transmitters share transmission resources. Because there can be multiple transmitters contending for the same transmission resource, there can be delay in transmission resources being allocated. In order to accommodate this, buffering and editing is performed AT THE SOURCE of each signal such that when eventually the transmission resource is obtained, the edited version is sent, such that clipping that would otherwise have occurred at the beginning can be avoided.

Figure 2 below, a reproduction of Figure 1 of Applicants' disclosure, shows a very particular example of a multi-access system. This is described on pages 7 and 8 of Applicant's disclosure. A mobile station requests an allocation of transmission resources before it can transmit on a transmission resource. At the start of a speech segment, the mobile station will not have any resources allocated because resources are not allocated during periods of inactivity. Thus, there is a delay that is experienced. In conventional systems, this led to clipping.

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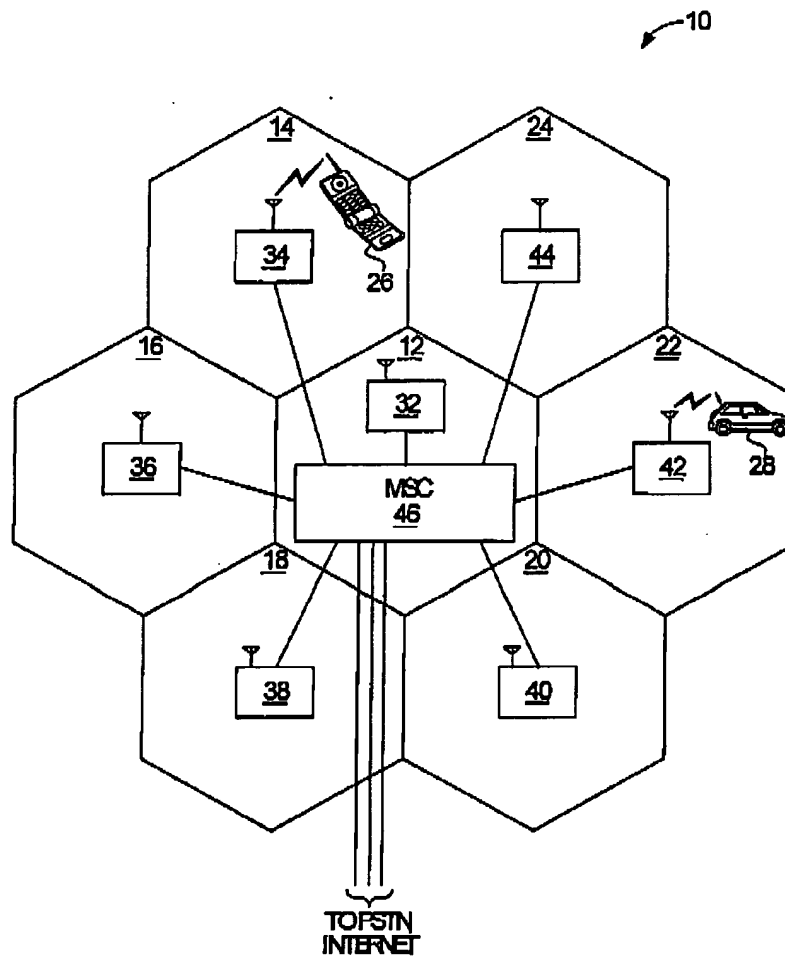


Fig. 2 (reproduction of Figure 1 of subject application)

Regarding the Kanerva *et al.* reference, this reference relates to high-speed multi-channel data services (HSCSD) on a radio interface of a mobile communication system. In particular, the Kanerva *et al.* reference discloses transmission of frames of a radio link protocol (RLP) selectively using as few subchannels as possible to support the current data rate. With reference to col 9 lines 1-41, the basic approach taught involves:

- 1) amount of input data is monitored (col. 9 line 14);
- 2) determine average data rate; (line 19)

3) can data rate be supported on two sub-channels? (line 21)

4) if not, transmit using all three sub-channels (line 24)

5) If so, transmit using two sub-channels, and transmit L2 fill frames on 3rd sub-channel according to GSM recommendation 04.06 item 5.4.2.3 (lines 35-41).

In summary, there is no editing and buffering of data to be transmitted; rather, the entire data is transmitted, but the number of channels used is adjusted up or down.

First Ground of Rejection

In paragraph 5 of the Final Action, the Examiner has rejected 1-6, 12-16, 22-29, 33-38 and 39-44 under 35 U.S.C. 103(a) as being unpatentable over United States Patent No. 5,436,899 (Fujino *et al.*) in view of United States Patent No. 5,793,744 (Kanerva *et al.*). In response, Applicant respectfully traverses the Examiner's rejection of claims rejected 1-6, 12-16, 22-29, 33-38 and 39-44 for at least the reasons outlined below.

Claim 1

The following analysis demonstrates that the Examiner has not established a *prima facie* case of obviousness in respect of claim 1.

Claim 1 - all claimed elements must be present in the reference or references when combined

Claim 1 is directed a method of transmitting in a multi-access system, and recites:

"detecting the start of an information segment being generated in real-time".

The Examiner has referred to element 51 (VDET) or Figure 17 of the Fujino *et al.* reference as disclosure for the above claim feature. The Examiner states "here the voice detector detects voice as the start of information segments at real time, because the communication takes place in real time". In column 14, lines 61 to 62 of the Fujino *et al.* reference element 51 is used for detecting silent sections by using an output from an AD (Analog-to-Digital) converting part 49. With respect, only silent sections are detected in the multiplex system of Fujino *et al.*. There is no disclosure of any detection of a start of an

information segment as in the case of a multi-access system. In particular, Applicant submits that detecting silent sections does not equate to detection of a start of an information segment. For example, in the case when two consecutive silent sections are detected, the detection of the first silent section does not imply the detection of the start of an information segment. Instead, in this case what comes next is another silent section.

Furthermore, the VAD taking place in Fujino is taking place after receipt from a remote source. See Figures 16B, 17 that show multiple signals being processed by the multiplexing device. Thus, there is no detection of the start of an information segment being generated in real-time. Rather the information segments are remotely generated, transmitted to the multiplexer, and processed there for multiplexing purposes.

Claim 1 also recites:

“editing and buffering the information segment or a first representation thereof to produce a second representation”

The Examiner has referred to columns 13, lines 18 to 36; and column 25, lines 12 to 48 of the Fujino *et al.* reference as disclosure for this claim feature. The portions referred to by the Examiner contain some description of Figure 1 above (i.e. Figure 16B of Fujino). The input signals are processed to identify core bits and supplementary bits. All of these bits are used in the multiplexer. More specifically, Col. 13 lines 38 to 42 reads: “The suppression of supplementary bits are arbitrated according to congestion level. The supplementary bits of channel 2 are not transmitted at all, but the supplementary bits of channels 1 and 4 are transmitted.”

The claim continues with:

“after transmission resources have been allocated, starting to transmit the second representation”

The Examiner has conceded that this is not taught in Fujino, and relies on Kanerva as teaching this feature. As discussed above, with regard to the Kanerva *et al.* reference, as discussed above what is being allocated are subchannels; however, there is no disclosure of

any editing and buffering being done to compensate for allocation delays in providing the subchannels. Rather, the number of subchannels used is adjusted/minimized. There is no "second representation that is produced", and transmitted after resource allocation. The entirety of the input signal is transmitted, be it on a reduced, or increased number of subchannels.

Claim 1 continues with:

"wherein the editing and buffering is done to compensate for transmission resource allocation delays".

As indicated above, the Examiner has conceded that Fujino does not involve waiting for transmission resources to be allocated before starting to transmit. With such a concession, it is difficult to see how the editing and buffering can possibly be performed for the purpose of compensating for transmission resource allocation delays. The Examiner refers to Col. 34 lines 46-65. It is difficult at best to Figure out what this passage is teaching. The fact that multiplexing can reduce delay is not the same as compensating for resource allocation delays. There not a single reference in Fujino to resource allocation delay being a problem – that is because multiplexing is being performed on complete signals – signals that were received over dedicated channels for example. The Fujino *et al.* reference has nothing to do with transmission resource allocation and therefore has nothing to do with compensating for transmission resource allocation delays.

On the basis of the above discussion, it can be seen that claimed features are missing from the cited references, and as such, requirement 1) for a *prima facie* case of obviousness is not satisfied.

Claim 1 – Motivation to Combine

The Examiner concedes that 'Fujino does not explicitly teach, "after transmission resources have been allocated, starting to transmit the second representation, in a multiple access system". However, the Examiner goes on to argue that 'Kanerva teaches "after transmission resources have been allocated, starting to transmit the second representation" (Abstract, col. [col.] 9, lines 1-41). Therefore, it would have been obvious to one of ordinary

skill in the art at the time of the invention to use Kanerva's teaching in the invention of Fujino because Kanerva teaches his invention introduce to reduce transmission power consumption, less temperature problems and simpler timing of reception (col. 4, lines 15-22)*.

With respect, in the Abstract and column 9, lines 1 to 41 of Kanerva there is no discussion or even remote suggestion as to an allocation of transmission resources. Rather, the transmitter decides how many subchannels are needed to support a specified average data rate. As detailed above, all of the data is transmitted, and only the number of subchannels employed is modified. As such, there is no second representation; rather the entire "first representation" is sent. As such, it is respectfully submitted Kanerva does not teach the limitation "after transmission resources have been allocated, starting to transmit the second representation".

Furthermore, even if Kanerva or some other reference taught the limitation "after transmission resources have been allocated, starting to transmit the second representation", Modifying the Fujino *et al.* reference to introduce this feature does not provide the advantages referred to by the Examiner which are to "reduce transmission power consumption, less temperature problems and simpler timing of reception". Those are advantages introduced when using only a subset of an available set of subchannels – in other words the specific problem Kanerva is addressing. In other words, the Examiner is suggesting a modification to the Fujino *et al.* reference stating advantages as motivation to combine the references; however, the modifications proposed do not bring about the advantages stated.

Furthermore, the Fujino *et al.* and the Kanerva *et al.* references solve completely different problems from each other and from the present invention as claimed in claim 1. Fujino is performing multiplexing to get more throughput on a channel, whereas Kanerva is performing subchannel selection to reduce bandwidth requirements, save power etc. Neither of these hint at any solution to the problem being addressed in the subject application, namely dealing with resource allocation delay. In particular, the problem of resource allocation delay does not exist in Fujino (or Kanerva) so there is no motivation to solve this problem.

As outlined in the MPEP 2413.01, motivation to combine can come from three sources: the nature of the problem to be solved – in this case entirely different and unrelated; the teachings of the prior art – in this case neither reference refers to the other; knowledge of one of ordinary skill in the art. None of these three sources apply here.

For at least the aforementioned reasons, Applicant submits that claim 1 is patentable over the Fujino *et al.* reference in view of the Kanerva *et al.* reference. The Board of Patent Appeals and Interferences is respectfully requested to reconsider and withdraw the rejection under 35 U.S.C. 103(a) against claim 1.

Claims 2 to 6, 13, 14, and 22 to 24

Each one of claims 2 to 6, 13, 14, and 22 to 24 depends directly or indirectly on claim 1 and should be allowed for the same reasons as discussed above with reference to claim 1.

The Board of Patent Appeals and Interferences is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claims 2 to 6, 13, 14, and 22 to 24.

Claim 12

Claim 12 depends on claim 1 and should be allowed for the same reasons as discussed above with reference to claim 1. Furthermore, claim 12 recites:

“upon detecting the start of the information segment, the method further comprises immediately requesting transmission resources to transmit the information segment”.

The Examiner has referred to column 14, lines 47 to 62 of Fujino *et al.* as disclosure for this claim feature. More particularly, the Examiner states that this passage ‘reads on “a call detector (CDET) 46 for detecting a call through monitoring by SS (Signal-Send) and SR (Signal-Receive) signals”’. With respect, this passage referred to by the Examiner discloses the structure of the apparatus of Figure 17, and Applicant submits that there is no disclosure of “upon detecting the start of the information segment, immediately requesting transmission resources to transmit the information segment”. In particular, as indicated by the Examiner the call detector 46 is used for detecting a call through monitoring by SS and SR signals. With respect, this is not the same as “upon detecting the start of the information segment,

requesting transmission resources to transmit the information segment". Furthermore, as discussed above with reference to claim 1, in Fujino *et al.* there is no disclosure or considerations of transmission resources.

The Board of Patent Appeals and Interferences is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claim 12.

Claim 15

Claim 15 depends on claim 1 and should be allowed for the same reasons as discussed above with reference to claim 1. Furthermore, claim 15 recites:

"before transmitting the second representation, the method further comprises passing the second representation through a frame erasure concealment unit to prevent corruption".

The Examiner has referred to column 13, lines 18 to 36 of the Fujino *et al.* reference as disclosure for this claim feature and states "discarding supplementary bits necessarily deteriorates sound quality, but permits transmission of core bits, thus ensuring the minimum sound quality provided by core bits".

The discarding step referred to by the Examiner forms part of a multiplexing process described in column 13, lines 18 to 36 of the Fujino *et al.* reference. With respect, the Examiner has already referred to this passage (the multiplexing process) for the editing and buffering step of base claim 1 which is to produce a second representation. The Examiner is now using the same step as disclosure for "passing the second representation through a frame erasure concealment unit to prevent corruption". With respect, Applicant submits that it makes no sense to refer to the same step for: 1) producing a second representation; and 2) and passing the second representation through a frame erasure concealment unit as these are two distinct steps.

The Board of Patent Appeals and Interferences is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claim 15.

Claim 16

Claim 16 depends on claim 15 and should be allowed for the same reasons as discussed above with reference to claim 15.

The Board of Patent Appeals and Interferences is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claim 16.

Claim 25

Claim 25 depends on claim 24 and should be allowed for the same reasons as discussed above with reference to claim 24. Furthermore, claim 25 should also be allowed for the same reasons as discussed above with reference to claim 15.

The Board of Patent Appeals and Interferences is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claim 25.

Claim 26

Claim 26 depends on claim 25 and should be allowed for the same reasons as discussed above with reference to claim 25.

The Board of Patent Appeals and Interferences is respectfully requested to withdraw the 35 U.S.C. 102(b) rejection of claim 26.

Claim 27

The following analysis demonstrates that the Examiner has not established a *prima facie* case of obviousness in respect of claim 27.

Claim 27 is directed to an apparatus to transmit information in a multi-access system, and recites, among other features:

“a buffer operable to buffer each shortened information segment until transmission resources are allocated to produce a buffered information segment”.

As discussed above with reference to claim 1, in the cited references there is no

concept of resource allocation delays. In fact, in the cited references there is no disclosure of any waiting for allocation of resources. As such, there is no disclosure of "a buffer operable to buffer each shortened information segment until transmission resources are allocated". As such, the requirement that the reference or references when combined teach all of the claim limitations is not satisfied

Regarding the requirement to establish a motivation to combine, as discussed in detail above, the Examiner has failed to establish a motivation to combine Fujino and Kanerva. Thus, it is respectfully submitted that the requirements for a *prima facie* case of obviousness have not been satisfied in the rejection of claim 27.

The Board of Patent Appeals and Interferences is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claim 27.

Claims 28, 29, and 33 to 38

Each one of claims 28, 29, and 33 to 38 depends directly or indirectly on claim 27 and should be allowed for the same reasons as discussed above with reference to claim 27. The Board of Patent Appeals and Interferences is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claims 28, 29, and 33 to 38.

Claim 39

Claim 39 depends on claim 1 and should be allowed for the same reasons as discussed above with reference to claim 1. Furthermore, claim 39 recites:

"monitoring a state of a buffer containing the information segment or the first representation and performing the editing so that the buffer does not overflow".

The Examiner has referred to a buffer RAM (Random Access Memory) of Figure 59A of the Fujino *et al.* reference as disclosure for the above claim feature. The Examiner has simply identified a buffer in Figure 59A; however, the Examiner has not identified any text in the Fujino *et al.* reference indicating "monitoring a state of a buffer containing the information segment or the first representation and performing the editing so that the buffer does not overflow". In particular, the description of Figure 59A is given in column 35, lines

4 to 30 of the Fujino *et al.* reference and there is no such disclosure in that passage.

The Board of Patent Appeals and Interferences is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claim 39.

Claim 40

Claim 40 depends on claim 1 and should be allowed for the same reasons as discussed above with reference to claim 1. Furthermore, claim 40 recites:

“performing the editing at least long enough to compensate for a resource acquisition time”.

The Examiner has referred to column 7, lines 43 to 51 of the Fujino *et al.* reference as disclosure for this claim feature. With respect, this passage discloses how “only side information in a core information part is transmitted for silent sections, while total data including the supplementary information part are transmitted for speech sections. During discarding because of congestion, lighter bits in the supplementary information part are sequentially discarded, thus improving the communication efficiency and permitting compressed transmission of various control data”.

With respect, the discarding referred to in this passage is not disclosed as discarding to compensate for a resource acquisition time. As such, the passage referred to by the Examiner does not disclose the above claim feature.

The Board of Patent Appeals and Interferences is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claim 40.

Claim 43

Claim 43 depends on claim 1 and should be allowed for the same reasons as discussed above with reference to claim 1. Furthermore, claim 43 recites:

“requesting the transmission resources from the multi-access system and receiving a resource allocation from the multi-access system after the resource allocation delays”.

The Examiner has referred to column 6, lines 1 to 25 of the Kanerva *et al.* reference as disclosure for this claim feature. With respect, this passage refers to how in a system, "the data link is established between a mobile station (MS) network terminal TAF (Terminal Adaptation Function) 31 and a network adapter IWF (Interworking Function) 41 (see Figure 1 of the Kanerva *et al.* reference) in the fixed network. The data link is a circuit-switch connection which reserves one (or more) traffic channel(s) from the radio interface for a duration of a connection".

In particular, what are being reserved here are traffic channels and there is no reference to any resource allocation delays. As such, there is no disclosure of any requesting the transmission resources from the multi-access system and receiving a resource allocation from the multi-access system "after the resource allocation delays" [emphasis added]. Instead, the traffic channels are either all used or a subset of the traffic channels is used.

The Board of Patent Appeals and Interferences is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claim 43.

Claims 41, 42, and 44

Claims 41, 42, and 44 each depend indirectly upon claim 27 and should be allowed for the same reasons as discussed above with reference to claim 27. Applicant notes that the Examiner has cited both the Fujino *et al.* reference and the Kanerva *et al.* reference against independent claim 27, but has only cited the Fujino *et al.* reference and Applicant's admitted prior art against claim 32 (see paragraph 7 of the Office Action). Since the Examiner has not cited the Kanerva *et al.* reference against claim 32, Applicant submits that the Examiner's rejection of claim 32 is inappropriate. Furthermore, since claims 41, 42, and 44 depend on claim 32 and the Examiner has not cited Applicant's admitted prior art against claims 41, 42, and 44, Applicant submits that the Examiner's rejection of claims 41, 42, and 44 is inappropriate.

The Examiner is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claims 41, 42, and 44.

Second Ground of Rejection

In paragraph 6 of the Detailed Action, the Examiner has rejected claims 7-11 under 35 U.S.C. 103(a) as being unpatentable over the Fujino *et al.* reference in view of the Kanerva *et al.* reference, and further in view of the book entitled "Wireless Communications Principles and Practice" (Rappaport). In response, Applicant respectfully submits that claims 7-11 are patentable over the Fujino *et al.* reference in view of the Kanerva *et al.* reference, and further in view of Rappaport for at least their dependence upon claim 1. Furthermore, Applicant submits additional arguments in favour of the patentability of claims 7-11 as outlined below.

Claim 7

Applicant has argued above that the Fujino *et al.* and Kanerva *et al.* references do not disclose all of the features of base claim 1. Applicant submits that the Rappaport reference fails to disclose the features of base claim 1 that the Fujino *et al.* and Kanerva *et al.* references fail to disclose. Therefore, Applicant submits that the *prima facie* obviousness requirement that the references teach all of the claimed limitations has not been satisfied in respect of claim 7.

Regarding the *prima facie* obviousness requirement for motivation to combine, as discussed above with reference to claim 1, claim 1 recites "editing and buffering...to produce a second representation, and claim 7 recites:

"wherein the buffering and editing comprises buffering and then editing".

In the Fujino *et al.* reference it makes no sense to perform the buffering step referred to by the Examiner and then perform the editing step referred to by the Examiner. In particular, in his rejection of claim 1 the Examiner has referred to element 140 in which there is a speed difference absorption buffer 142 for the buffering step (see Figure 35 of the Fujino *et al.* reference). As shown in Figure 36 of the Fujino *et al.* reference, the buffering is provided by the speed difference absorption buffer 142 which, as discussed above, is used as a transmission holding buffer. In particular, as disclosed in column 25, lines 36 to 42 the speed difference absorption buffer 142 absorbs a difference between multiplexed frames

inputted at speed V_1 from a multiplexer side and a transmission speed V_2 to a packet network side. Applicant submits that there is no disclosure of a buffer operable to buffer each shortened information segment until transmission resources are allocated to produce a buffered information segment, for the same reasons as discussed above with reference to claim 1. With respect, modifying the Fujino *et al.* reference to apply the speed difference absorption buffer 142 before any editing simply makes no sense as there would be no existing multiplexed frames. As such, buffering and then editing requires a modification to the Fujino *et al.* reference that renders the system of Fujino *et al.* unworkable and therefore teaches away from the Fujino *et al.* reference. Under section "2142.01 Suggestion or motivation to Modify References [R-1]" of the Manual of Patent Examining Procedure (MPEP), a "proposed modification cannot change the principle of operation of a reference". Applicant submits that the Examiner has not complied with this requirement for at least the aforementioned reasons. Therefore, the motivation to combine requirement for a *prima facie* case of obviousness is not satisfied.

Thus, none of the requirements for a *prima facie* case of obviousness are satisfied.

The Board of Patent Appeals and Interferences is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claim 7.

Claims 8 to 11

Claims 8 to 11 each depend directly or indirectly on claim 7 and should be allowed for the same reasons as discussed above with reference to claim 7. The Board of Patent Appeals and Interferences is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claims 8 to 11.

Third Ground of Rejection

In paragraph 7 of the Detailed Action, the Examiner has rejected claims 18-21 and 31-32 under 35 U.S.C. 103(a) as being unpatentable over the Fujino *et al.* reference in view of Applicant's admitted prior art (Figure 1). In response, Applicant respectfully submits that claims 18-21 and 31-32 are patentable over the Fujino *et al.* reference in view of Applicant's admitted prior art (Figure 1) for at least their dependence upon one of claims 1

and 27. Furthermore, Applicant submits additional arguments in favour of the patentability of claims 18-21 and 31-32 as outlined below.

To begin, it is noted that in Applicant's response dated February 19, Applicant argued against Figure 1 and Figure 2 being Applicant admitted prior art. In subsequent Office Actions the Examiner has failed to recognize this. Thus, at the outset, the combination is improper since one of the two references is not in fact prior art.

In the discussion that follows, reference will be made to Applicant admitted prior art (Figure 1) (hereinafter referred to as AAPA) for convenience, but it is to be understood that Applicant does not admit to this being prior art.

1) Features of Claims 18-21 and 31-32

Applicant respectfully submits that the teachings of the Fujino *et al.* reference together with the teachings of AAPA does not teach all claim limitations of any of claims 18-21 and 31-32 for at least their dependence upon on one of claims 1 and 27. Furthermore, Applicant submits that the rejection of claims 18 to 21 and 31 to 32 is inappropriate. Applicant notes that each one of claims 18 to 21 and 31 to 32 depends directly or indirectly on one of claims 1 and 27. Applicant notes that the Examiner has cited both the Fujino *et al.* reference and the Kanerva *et al.* reference against base claims 1 and 27, but does not cite the Kanerva *et al.* reference against dependent claims 18 to 21 and 31 to 32. For at least this reason, Applicant submits that the Examiner's rejection of claims 18 to 21 and 31 to 32 is inappropriate. Furthermore, the Examiner has admitted that not all of the claim features of base claims 1 and 27 are found in the Fujino *et al.* reference and Applicant submits that these features are also not disclosed in AAPA .

For at least the aforementioned reasons, Applicant submits that the first requirement for establishing a *prima facie* case of obviousness has not been met.

3) Motivation to combine references

Applicant submits that the Examiner has not established motivation for combining the Fujino *et al.* reference and AAPA . The Examiner states that "it would have been obvious to

one of ordinary skill in the art at the time of the invention to adapt a wireless telecommunication for sending information from a mobile station to base station using RF transmission channel known way because to achieve a mobility in the communication sector. It is respectfully submitted this statement does not provide the required motivation to combine. Furthermore, it is submitted that there is no motivation to combine for at least the reasons detailed below.

It is well established that motivation to combine can come from: the references themselves, the problem being solved, or the knowledge of the person skilled in the art. In this case, the references do not refer to each other so motivation to combine does not come from the references themselves. A completely different problem is being addressed. The Applicant's admitted prior art only discusses a multi-access cellular wireless network. Fujino discussed optimizing multiplexing over a link. There is absolutely no commonality in the problem being solved. As for the knowledge of one skilled in the art, the Examiner has not established that a person trying to deal with resource allocation delay in a multi-access system would also be aware of link multiplexing techniques.

Applicant submits that there can be no motivation to combine the Fujino *et al.* reference and AAPA, as such a combination requires significant modification to their teachings. Referring to Section "2142.01 Suggestion or motivation to Modify References [R-1]" of the Manual of Patent Examining Procedure (MPEP), a "proposed modification cannot change the principle of operation of a reference". Applicant submits that the Examiner has not conformed to this for at least the reasons outlined below.

As previously discussed, Fujino teaches multiplexing to get more throughput on a channel. Multiplexing is performed by a multiplexing unit, such as the multiplexing unit shown in Figure 48, and is not performed at the source. Applicant's admitted prior art teaches a multi-access wireless system with reference to Figure 1. Each base station (see reference numbers 34, 36, 38, 40, 42, 44) may have many mobile stations within its respective cell for communication. In AAPA, multiplexing of signals received from the mobile stations could not be performed until receipt at the base station since until then the signals are physically separate. Multiplexing at the base station would not deal with the resource allocation delay problem experienced by mobile stations.

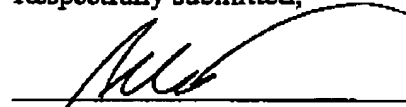
22

For at least the aforementioned reasons, Applicant submits that claims 18-21 and 31-32 are patentable over the Fujino *et al.* reference in view of Applicant's admitted prior art. The Board of Patent Appeals and Interferences is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claims 18 to 21 and 31 to 32.

Favourable consideration and allowance of the application is respectfully requested.

Respectfully submitted,

By


Allan Brett
Registration No. 40,476
Smart & Biggar

Dated: September 27, 2005
Ottawa, Ontario, Canada
Tel: (613) 232-2486 ext. 323
RAB:PDB:kbc

Claims Appendix

1. A method of transmitting in a multi-access system comprising:

detecting the start of an information segment being generated in real-time;

editing and buffering the information segment or a first representation thereof to produce a second representation; and

after transmission resources have been allocated, starting to transmit the second representation;

wherein the editing and buffering is done to compensate for transmission resource allocation delays.
2. The method of claim 1 wherein editing and buffering comprises editing and then buffering.
3. The method of claim 2 wherein editing is done on the information segment to produce a shortened information segment.
4. The method of claim 2 wherein editing is done on the first representation which is a framed version of the information segment to produce a shortened information segment.
5. The method of claim 3 wherein buffering is done on the shortened information segment to produce the second representation.
6. The method of claim 3 wherein buffering is done on a frame version of the shortened information segment to produce the second representation.
7. The method of claim 1 wherein buffering and editing comprises buffering and then editing.
8. The method of claim 7 wherein buffering is done on the information segment to produce a buffered information segment.
9. The method of claim 7 wherein buffering is done on the first representation which is a

framed version of the information segment to produce a buffered information segment.

10. The method of claim 8 wherein editing is done on the buffered information segment to produce a shortened information segment.

11. The method of claim 8 wherein editing is done on the first representation which is a framed version of the buffered information segment to produce a shortened information segment.

12. The method of claim 1 wherein upon detecting the start of the information segment, the method further comprises immediately requesting transmission resources to transmit the information segment.

13. The method of claim 6 wherein editing the information segment to produce a shortened information segment comprises time compressing the information segment.

14. The method of claim 13 wherein time compressing the information segment comprises removing repetitions and/or short pauses present in the segment.

15. The method of claim 1 wherein before transmitting the second representation, the method further comprises passing the second representation through a frame erasure concealment unit to prevent corruption.

16. The method of claim 15 wherein before transmitting the second representation, the method further comprises placing the second representation in one or more packets for transmission.

18. The method of claim 1 wherein the multi-access system is a multi-access wireless system.

19. The method of claim 18 wherein the information segment is transmitted from a mobile station to a base station.

20. The method of claim 19 wherein the transmission resources consist of one or more information channels.

21. The method of claim 20 wherein each information channel is a radio frequency (RF) channel.
22. The method of claim 1 wherein the information segment is a speech segment.
23. The method of claim 4 wherein editing the framed version of the information segment to produce a shortened information segment comprises removing redundant frames.
24. The method of claim 23 wherein removing redundant frames comprises removing frames which contain repetitions and/or short pauses.
25. The method of claim 24 wherein before transmitting the second representation, the method further comprises passing the second representation through a frame erasure concealment unit to prevent corruption.
26. The method of claim 25 wherein before transmitting the second representation, the method further comprises placing the second representation in one or more packets for transmission.
27. An apparatus to transmit information in a multi-access system, the apparatus comprising:
 - an information detector operable to detect incoming information segments to transmit;
 - an information editor operable to edit each information segment detected so as to produce a respective shortened information segment;
 - a buffer operable to buffer each shortened information segment until transmission resources are allocated to produce a buffered information segment; and
 - a transmitter operable to transmit each buffered information segment.
28. The apparatus of claim 27 wherein for editing each information segment detected so as to produce a respective shortened information segment, the information editor is operable to time compress each information segment.

29. The apparatus of claim 27 further comprising a coder connected to the information editor and operable to code each shortened information segment into a respective plurality of frames.

31. A wireless transmitter comprising the apparatus of claim 27.

32. A mobile station comprising the wireless transmitter of claim 31.

33. The apparatus of claim 27 wherein each information segment is a speech segment.

34. The apparatus of claim 33 wherein the information detector is a voice activity detector, the information editor is a speech pause/edit unit and the coder is a speech coder.

35. The apparatus of claim 34 further comprising a frame erasure concealment unit connected to receive each speech segment buffered and operable to prevent corruption before transmission.

36. The apparatus of claim 35 further comprising a protocol handler connected between the frame erasure concealment unit and the transmitter, the protocol handler being operable to place each speech segment buffered in one or more packets for transmission to a node.

37. The apparatus of claim 27 further comprising a coder operable to code each information segment detected into a respective plurality of frames.

38. The apparatus of claim 37 wherein for editing each information segment detected so as to produce a respective shortened information segment, the information editor is operable for each information segment to remove redundant frames from the respective plurality of frames.

39. A method according to claim 1 comprising monitoring a state of a buffer containing the information segment or the first representation and performing the editing so that the buffer does not overflow.

40. A method according to claim 1 comprising performing the editing at least long enough to compensate for a resource acquisition time.

41. A mobile station according to claim 32 wherein the information editor is adapted to monitor the state of the buffer and adapt the edit of each information segment detected so that the buffer does not overflow.

42. A mobile station according to claim 32 wherein the information editor is adapted to operate at least long enough to compensate for a resource acquisition time at the mobile station.

43. A method according to claim 1 comprising requesting the transmission resources from the multi-access system and receiving a resource allocation from the multi-access system after the resource allocation delays.

44. A mobile station according to claim 32 wherein the information editor is further adapted to request the transmission resources from the multi-access system, the transmission resources being allocated by the multi-access system after resource allocation delays.

Evidence Appendix

This appendix is empty, as there has been no evidence submitted pursuant to Sections. 1.130, 1.131, or 1.132 of 37 CFR.

Related Proceedings Appendix

This appendix is empty, as there are no related appeals or interferences that will directly affect, be directly affected by or have a bearing on the present appeal.

TRANSMITTAL OF APPEAL BRIEF (Large Entity)Docket No.
77682-236 /abaIn Re Application Of: **Indranil B. Tapadar, et al**

Application No.	Filing Date	Examiner	Customer No.	Group Art Unit	Confirmation No.
09/465,318	December 17, 1999	Abul K. Azad	07380	2564	8752

Invention: **METHOD AND APPARATUS FOR TRANSMITTING REAL-TIME DATA IN MULTI-ACCESS SYSTEMS****COMMISSIONER FOR PATENTS:**Transmitted herewith in triplicate is the Appeal Brief in this application, with respect to the Notice of Appeal filed on
July 27, 2005The fee for filing this Appeal Brief is: **\$500.00**

- ☐ A check in the amount of the fee is enclosed.
- ☒ The Director has already been authorized to charge fees in this application to a Deposit Account.
- ☒ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. 19-2550
- ☐ Payment by credit card. Form PTO-2038 is attached.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.
Signature**R. Allan Brett**
Registration No. 40,476**CUSTOMER NO. 07380**

Tel.: 613-232-2486

cc:

Dated: **September 27, 2005**

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to "Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450" [37 CFR 1.8(a)] on

(Date)

Signature of Person Mailing Correspondence

Typed or Printed Name of Person Mailing Correspondence

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE HONORABLE BOARD OF PATENT APPEALS

In re application of:)	
TAPADAR, Indranil B. et al)	
)	Group Art Unit: 2654
Serial No.: 09/465,318)	
)	Examiner: Abul K. Azad
Filed: December 17, 1999)	
)	Attorney Docket: 77682-236
For: METHOD AND APPARATUS FOR)	
TRANSMITTING REAL-TIME DATA IN)	
MULTI-ACCESS SYSTEMS)	

APPEAL BRIEF UNDER 37 C.F.R. 1.192

Board of Patent Appeals and Interferences

United States Patent and Trademark Office

P.O. Box 1450

Alexandria, VA 22313-1450

Sir:

The following is the Appellant's Brief, submitted in triplicate and under the provisions of 37 C.F.R. 1.192. The fee of \$330 required by 37 C.F.R. 1.17(c) is enclosed.

Real Party in Interest

The real party in interest is the assignee of record, namely Nortel Networks Limited, 2351 Boulevard Alfred-Nobel, St. Laurent, Quebec, Canada, H4S 2A9.

Related Appeals and Interferences

There are no related appeals or interferences that will directly affect, be directly affected by or have a bearing on the present appeal.

Status of Claims

Claims 1-16, 18-29 and 31-44 stand finally rejected by the Examiner as noted in the

Office Action dated April 29, 2005. Claims 17 and 30 are cancelled. The rejection of claims 1-16, 18-29 and 31-44 is appealed.

Status of Amendments

No amendments were filed subsequent to the Final Action of April 29, 2005.

Summary of the Invention

According to a broad aspect, as recited by independent claim 1, the present application provides a method of transmitting in a multi-access system. According to the method, an information segment being generated in real-time is edited and buffered to compensate for transmission resource allocation delays before transmission of the information segment is started (see page 11, line 23 through page 12, line 2 with reference to Figures 2 and 3).

In some embodiments, as recited by dependent claim 7, buffering and editing comprises buffering and then editing (see page 3, lines 28-34).

In some embodiments, as recited by dependent claim 12, upon detecting the start of the information segment, transmission resources to transmit the information segment are immediately requested (see page 10, lines 4-8).

In some embodiments, as recited by dependent claim 15, before transmitting the second representation, the second representation is passed through a frame erasure concealment unit to prevent corruption (see page 12, lines 25-30, FEC 110 in Figure 3 and FEC 150 in Figure 5).

In some embodiments, as recited by dependent claim 18, the multi-access system is a multi-access wireless system (see page 6, lines 21-27).

In some embodiments, as recited by dependent claim 19, the information segment is transmitted from a mobile station to a base station (see page 10, lines 22-25).

In some embodiments, as recited by dependent claim 20, the transmission resources consist of one or more information channels (see page 7, lines 1-4).

In some embodiments, as recited by dependent claim 21, each information channel is a radio frequency (RF) channel (see page 7, lines 1-6).

In some embodiments, as recited by dependent claim 39, the method further comprises monitoring a state of a buffer containing the information segment or the first representation and performing the editing so that the buffer does not overflow (see page 15, lines 3-9).

In some embodiments, as recited by dependent claim 40, the method further comprises performing the editing at least long enough to compensate for a resource acquisition time (see page 15, lines 10-22).

In some embodiments, as recited by dependent claim 43, the method further comprises requesting the transmission resources from the multi-access system and receiving a resource allocation from the multi-access system after the resource allocation delays (see page 10, lines 4-9).

According to another broad aspect, as recited by independent claim 27, the present application provides an apparatus to transmit information in a multi-access system. The apparatus has an information detector operable to detect incoming information segments to transmit (see microphone 50 and ADC 52 in Figures 2, 3, and 5), an information editor operable to edit each information segment detected so as to produce a respective shortened information segment (see speech encoder 55 in Figures 2, 3, and 5), a buffer operable to buffer each shortened information segment until transmission resources are allocated to produce a buffered information segment (see buffer 108 in Figures 3 and 5), and a transmitter operable to transmit each buffered information segment (see tx 56 in Figure 2). The description provides an overview of the apparatus on page 11, line 23 through page 12, line 2 with reference to Figures 2 and 3.

In some embodiments, as recited by dependent claim 31, there is provided a wireless transmitter comprising the apparatus to transmit information in a multi-access system (see tx 56 in Figure 2).

In some embodiments, as recited by dependent claim 32, there is provided a mobile

station comprising the wireless transmitter (see Figure 2).

In some embodiments, as recited by dependent claim 41, the information editor is adapted to monitor the state of the buffer and adapt the edit of each information segment detected so that the buffer does not overflow (see page 15, lines 4-10).

In some embodiments, as recited by dependent claim 42, the information editor is adapted to operate at least long enough to compensate for a resource acquisition time at the mobile station (page 15, lines 16-19).

In some embodiments, as recited by dependent claim 44, the information editor is further adapted to request the transmission resources from the multi-access system, the transmission resources being allocated by the multi-access system after resource allocation delays (see page 10, lines 4-9).

Grounds of Rejection to be Reviewed on Appeal

A first ground of rejection to be reviewed on appeal is the ground outlined in paragraph 5 of the Final Action rejecting claims 1-6, 12-16, 22-29, 33-38 and 39-44 under 35 U.S.C. 103(a) as being unpatentable over United States Patent No. 5,436,899 (Fujino *et al.*) in view of United States Patent No. 5,793,744 (Kanerva *et al.*).

A second ground of rejection to be reviewed on appeal is the ground outlined in paragraph 6 of the Final Action rejecting claims 7-11 under 35 U.S.C. 103(a) as being unpatentable over the Fujino *et al.* reference in view of the Kanerva *et al.* reference, and further in view of the book entitled "Wireless Communications Principles and Practice" (Rappaport).

A third ground of rejection to be reviewed on appeal is the ground outlined in paragraph 7 of the Final Action rejecting claims 18-21 and 31-32 under 35 U.S.C. 103(a) as being unpatentable over the Fujino *et al.* reference in view of Applicant's admitted prior art (Figure 1).

Arguments

There are three requirements for establishing a *prima facie* case of obviousness: 1) all claimed elements must be present in the reference or references when combined; 2) there must be an expectation of a reasonable chance of success; and 3) there must be some suggestion or motivation in the prior art to combine the references. Applicant will show how these three requirements have not been satisfied in the rejections under appeal.

Because the Fujino reference is relied upon in all of the rejections, it is useful to have a good understanding of what it teaches generally. By way of overview, in the Fujino *et al.* reference a multiplexed transmission system is disclosed. The system takes multiple input signals, performs a multiplexing operation to produce an output signal that is more efficient in terms of bandwidth utilization etc. Figure 1 below, a reproduction of Figure 16B of Fujino, shows this quite clearly. There are a series of input signals from various CODECs shown on the left; these go into the multiplexing unit where silence compression etc. is performed to produce a multiplexed packet format for transmission in the right of the drawing. Figure 17 is another embodiment in which there is a six line interface 45 with four lines for voice and two lines for control as described in column 14, lines 47 to 63. Coding of the voice signals takes place in the coder 50 to produce coded data, AND to produce a second signal (R1 code in the Figure) that is used to indicate which portions of the coded signal can be dropped if necessary. The multiplexer 47 then multiplexes the multiple coded signals taking into account this information.

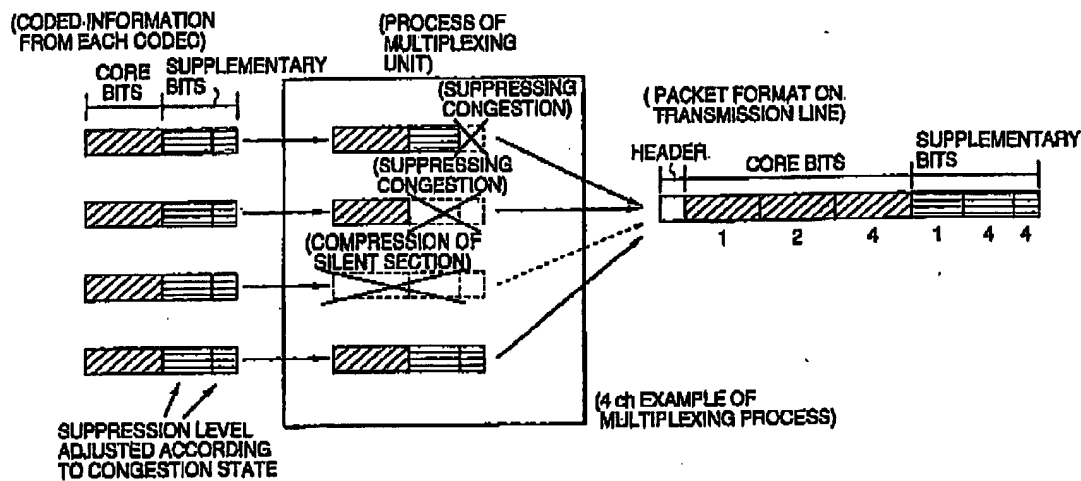


Fig. 1 (Reproduction of Fig. 16B of Fujino *et al.*)

By way of overview, in the present application, embodiments of the invention are described in the context of a multi-access system in which multiple transmitters share transmission resources. Because there can be multiple transmitters contending for the same transmission resource, there can be delay in transmission resources being allocated. In order to accommodate this, buffering and editing is performed AT THE SOURCE of each signal such that when eventually the transmission resource is obtained, the edited version is sent, such that clipping that would otherwise have occurred at the beginning can be avoided.

Figure 2 below, a reproduction of Figure 1 of Applicants' disclosure, shows a very particular example of a multi-access system. This is described on pages 7 and 8 of Applicant's disclosure. A mobile station requests an allocation of transmission resources before it can transmit on a transmission resource. At the start of a speech segment, the mobile station will not have any resources allocated because resources are not allocated during periods of inactivity. Thus, there is a delay that is experienced. In conventional systems, this led to clipping.

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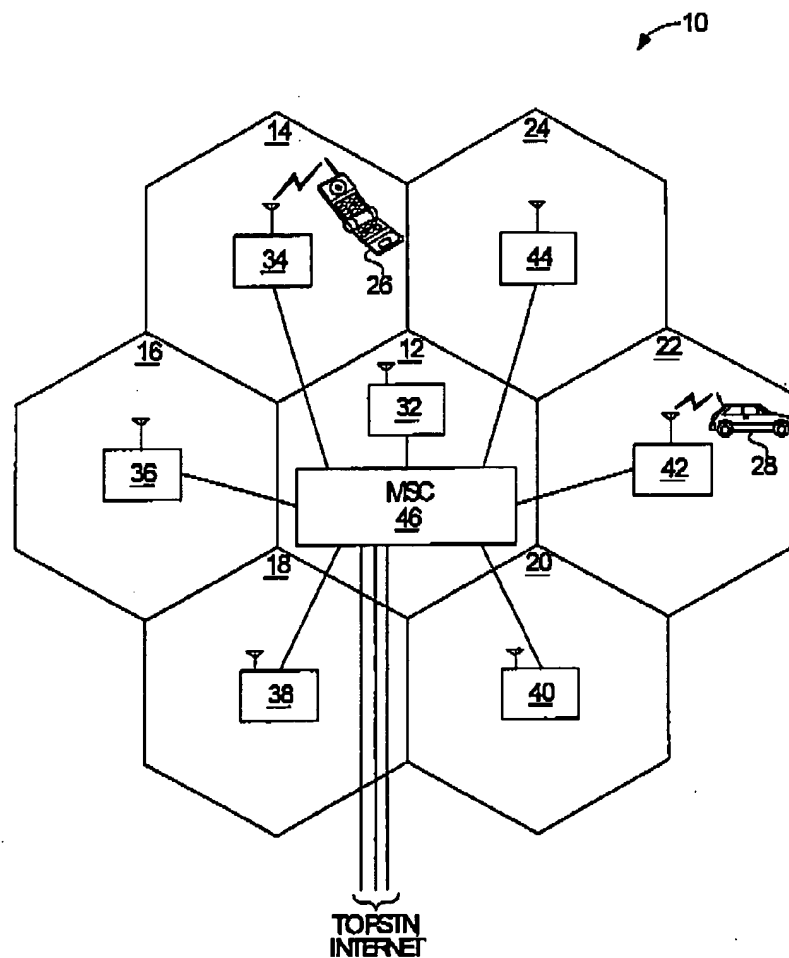


Fig. 2 (reproduction of Figure 1 of subject application)

Regarding the Kanerva *et al.* reference, this reference relates to high-speed multi-channel data services (HSCSD) on a radio interface of a mobile communication system. In particular, the Kanerva *et al.* reference discloses transmission of frames of a radio link protocol (RLP) selectively using as few subchannels as possible to support the current data rate. With reference to col 9 lines 1-41, the basic approach taught involves:

- 1) amount of input data is monitored (col. 9 line 14);
- 2) determine average data rate; (line 19)

3) can data rate be supported on two sub-channels? (line 21)

4) if not, transmit using all three sub-channels (line 24)

5) If so, transmit using two sub-channels, and transmit L2 fill frames on 3rd sub-channel according to GSM recommendation 04.06 item 5.4.2.3 (lines 35-41).

In summary, there is no editing and buffering of data to be transmitted; rather, the entire data is transmitted, but the number of channels used is adjusted up or down.

First Ground of Rejection

In paragraph 5 of the Final Action, the Examiner has rejected 1-6, 12-16, 22-29, 33-38 and 39-44 under 35 U.S.C. 103(a) as being unpatentable over United States Patent No. 5,436,899 (Fujino *et al.*) in view of United States Patent No. 5,793,744 (Kanerva *et al.*). In response, Applicant respectfully traverses the Examiner's rejection of claims rejected 1-6, 12-16, 22-29, 33-38 and 39-44 for at least the reasons outlined below.

Claim 1

The following analysis demonstrates that the Examiner has not established a *prima facie* case of obviousness in respect of claim 1.

Claim 1 - all claimed elements must be present in the reference or references when combined

Claim 1 is directed a method of transmitting in a multi-access system, and recites:

"detecting the start of an information segment being generated in real-time".

The Examiner has referred to element 51 (VDET) or Figure 17 of the Fujino *et al.* reference as disclosure for the above claim feature. The Examiner states "here the voice detector detects voice as the start of information segments at real time, because the communication takes place in real time". In column 14, lines 61 to 62 of the Fujino *et al.* reference element 51 is used for detecting silent sections by using an output from an AD (Analog-to-Digital) converting part 49. With respect, only silent sections are detected in the multiplex system of Fujino *et al.*. There is no disclosure of any detection of a start of an

information segment as in the case of a multi-access system. In particular, Applicant submits that detecting silent sections does not equate to detection of a start of an information segment. For example, in the case when two consecutive silent sections are detected, the detection of the first silent section does not imply the detection of the start of an information segment. Instead, in this case what comes next is another silent section.

Furthermore, the VAD taking place in Fujino is taking place after receipt from a remote source. See Figures 16B, 17 that show multiple signals being processed by the multiplexing device. Thus, there is no detection of the start of an information segment being generated in real-time. Rather the information segments are remotely generated, transmitted to the multiplexer, and processed there for multiplexing purposes.

Claim 1 also recites:

"editing and buffering the information segment or a first representation thereof to produce a second representation"

The Examiner has referred to columns 13, lines 18 to 36; and column 25, lines 12 to 48 of the Fujino *et al.* reference as disclosure for this claim feature. The portions referred to by the Examiner contain some description of Figure 1 above (i.e. Figure 16B of Fujino). The input signals are processed to identify core bits and supplementary bits. All of these bits are used in the multiplexer. More specifically, Col. 13 lines 38 to 42 reads: "The suppression of supplementary bits are arbitrated according to congestion level. The supplementary bits of channel 2 are not transmitted at all, but the supplementary bits of channels 1 and 4 are transmitted."

The claim continues with:

"after transmission resources have been allocated, starting to transmit the second representation"

The Examiner has conceded that this is not taught in Fujino, and relies on Kanerva as teaching this feature. As discussed above, with regard to the Kanerva *et al.* reference, as discussed above what is being allocated are subchannels; however, there is no disclosure of

any editing and buffering being done to compensate for allocation delays in providing the subchannels. Rather, the number of subchannels used is adjusted/minimized. There is no "second representation that is produced", and transmitted after resource allocation. The entirety of the input signal is transmitted, be it on a reduced, or increased number of subchannels.

Claim 1 continues with:

"wherein the editing and buffering is done to compensate for transmission resource allocation delays".

As indicated above, the Examiner has conceded that Fujino does not involve waiting for transmission resources to be allocated before starting to transmit. With such a concession, it is difficult to see how the editing and buffering can possibly be performed for the purpose of compensating for transmission resource allocation delays. The Examiner refers to Col. 34 lines 46-65. It is difficult at best to Figure out what this passage is teaching. The fact that multiplexing can reduce delay is not the same as compensating for resource allocation delays. There not a single reference in Fujino to resource allocation delay being a problem – that is because multiplexing is being performed on complete signals – signals that were received over dedicated channels for example. The Fujino *et al.* reference has nothing to do with transmission resource allocation and therefore has nothing to do with compensating for transmission resource allocation delays.

On the basis of the above discussion, it can be seen that claimed features are missing from the cited references, and as such, requirement 1) for a *prima facie* case of obviousness is not satisfied.

Claim 1 – Motivation to Combine

The Examiner concedes that 'Fujino does not explicitly teach, "after transmission resources have been allocated, starting to transmit the second representation, in a multiple access system". However, the Examiner goes on to argue that 'Kanerva teaches "after transmission resources have been allocated, starting to transmit the second representation" (Abstract, col. [col.] 9, lines 1-41). Therefore, it would have been obvious to one of ordinary

skill in the art at the time of the invention to use Kanerva's teaching in the invention of Fujino because Kanerva teaches his invention introduce to reduce transmission power consumption, less temperature problems and simpler timing of reception (col. 4, lines 15-22)'.

With respect, in the Abstract and column 9, lines 1 to 41 of Kanerva there is no discussion or even remote suggestion as to an allocation of transmission resources. Rather, the transmitter decides how many subchannels are needed to support a specified average data rate. As detailed above, all of the data is transmitted, and only the number of subchannels employed is modified. As such, there is no second representation; rather the entire "first representation" is sent. As such, it is respectfully submitted Kanerva does not teach the limitation "after transmission resources have been allocated, starting to transmit the second representation".

Furthermore, even if Kanerva or some other reference taught the limitation "after transmission resources have been allocated, starting to transmit the second representation", Modifying the Fujino *et al.* reference to introduce this feature does not provide the advantages referred to by the Examiner which are to "reduce transmission power consumption, less temperature problems and simpler timing of reception". Those are advantages introduced when using only a subset of an available set of subchannels – in other words the specific problem Kanerva is addressing. In other words, the Examiner is suggesting a modification to the Fujino *et al.* reference stating advantages as motivation to combine the references; however, the modifications proposed do not bring about the advantages stated.

Furthermore, the Fujino *et al.* and the Kanerva *et al.* references solve completely different problems from each other and from the present invention as claimed in claim 1. Fujino is performing multiplexing to get more throughput on a channel, whereas Kanerva is performing subchannel selection to reduce bandwidth requirements, save power etc. Neither of these hint at any solution to the problem being addressed in the subject application, namely dealing with resource allocation delay. In particular, the problem of resource allocation delay does not exist in Fujino (or Kanerva) so there is no motivation to solve this problem.

As outlined in the MPEP 2413.01, motivation to combine can come from three sources: the nature of the problem to be solved – in this case entirely different and unrelated; the teachings of the prior art – in this case neither reference refers to the other; knowledge of one of ordinary skill in the art. None of these three sources apply here.

For at least the aforementioned reasons, Applicant submits that claim 1 is patentable over the Fujino *et al.* reference in view of the Kanerva *et al.* reference. The Board of Patent Appeals and Interferences is respectfully requested to reconsider and withdraw the rejection under 35 U.S.C. 103(a) against claim 1.

Claims 2 to 6, 13, 14, and 22 to 24

Each one of claims 2 to 6, 13, 14, and 22 to 24 depends directly or indirectly on claim 1 and should be allowed for the same reasons as discussed above with reference to claim 1.

The Board of Patent Appeals and Interferences is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claims 2 to 6, 13, 14, and 22 to 24.

Claim 12

Claim 12 depends on claim 1 and should be allowed for the same reasons as discussed above with reference to claim 1. Furthermore, claim 12 recites:

“upon detecting the start of the information segment, the method further comprises immediately requesting transmission resources to transmit the information segment”.

The Examiner has referred to column 14, lines 47 to 62 of Fujino *et al.* as disclosure for this claim feature. More particularly, the Examiner states that this passage ‘reads on “a call detector (CDET) 46 for detecting a call through monitoring by SS (Signal-Send) and SR (Signal-Receive) signals”’. With respect, this passage referred to by the Examiner discloses the structure of the apparatus of Figure 17, and Applicant submits that there is no disclosure of “upon detecting the start of the information segment, immediately requesting transmission resources to transmit the information segment”. In particular, as indicated by the Examiner the call detector 46 is used for detecting a call through monitoring by SS and SR signals. With respect, this is not the same as “upon detecting the start of the information segment,

requesting transmission resources to transmit the information segment". Furthermore, as discussed above with reference to claim 1, in Fujino *et al.* there is no disclosure or considerations of transmission resources.

The Board of Patent Appeals and Interferences is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claim 12.

Claim 15

Claim 15 depends on claim 1 and should be allowed for the same reasons as discussed above with reference to claim 1. Furthermore, claim 15 recites:

"before transmitting the second representation, the method further comprises passing the second representation through a frame erasure concealment unit to prevent corruption".

The Examiner has referred to column 13, lines 18 to 36 of the Fujino *et al.* reference as disclosure for this claim feature and states "discarding supplementary bits necessarily deteriorates sound quality, but permits transmission of core bits, thus ensuring the minimum sound quality provided by core bits".

The discarding step referred to by the Examiner forms part of a multiplexing process described in column 13, lines 18 to 36 of the Fujino *et al.* reference. With respect, the Examiner has already referred to this passage (the multiplexing process) for the editing and buffering step of base claim 1 which is to produce a second representation. The Examiner is now using the same step as disclosure for "passing the second representation through a frame erasure concealment unit to prevent corruption". With respect, Applicant submits that it makes no sense to refer to the same step for: 1) producing a second representation; and 2) and passing the second representation through a frame erasure concealment unit as these are two distinct steps.

The Board of Patent Appeals and Interferences is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claim 15.

Claim 16

Claim 16 depends on claim 15 and should be allowed for the same reasons as discussed above with reference to claim 15.

The Board of Patent Appeals and Interferences is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claim 16.

Claim 25

Claim 25 depends on claim 24 and should be allowed for the same reasons as discussed above with reference to claim 24. Furthermore, claim 25 should also be allowed for the same reasons as discussed above with reference to claim 15.

The Board of Patent Appeals and Interferences is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claim 25.

Claim 26

Claim 26 depends on claim 25 and should be allowed for the same reasons as discussed above with reference to claim 25.

The Board of Patent Appeals and Interferences is respectfully requested to withdraw the 35 U.S.C. 102(b) rejection of claim 26.

Claim 27

The following analysis demonstrates that the Examiner has not established a *prima facie* case of obviousness in respect of claim 27.

Claim 27 is directed to an apparatus to transmit information in a multi-access system, and recites, among other features:

"a buffer operable to buffer each shortened information segment until transmission resources are allocated to produce a buffered information segment".

As discussed above with reference to claim 1, in the cited references there is no

concept of resource allocation delays. In fact, in the cited references there is no disclosure of any waiting for allocation of resources. As such, there is no disclosure of "a buffer operable to buffer each shortened information segment until transmission resources are allocated". As such, the requirement that the reference or references when combined teach all of the claim limitations is not satisfied

Regarding the requirement to establish a motivation to combine, as discussed in detail above, the Examiner has failed to establish a motivation to combine Fujino and Kanerva. Thus, it is respectfully submitted that the requirements for a *prima facie* case of obviousness have not been satisfied in the rejection of claim 27.

The Board of Patent Appeals and Interferences is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claim 27.

Claims 28, 29, and 33 to 38

Each one of claims 28, 29, and 33 to 38 depends directly or indirectly on claim 27 and should be allowed for the same reasons as discussed above with reference to claim 27. The Board of Patent Appeals and Interferences is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claims 28, 29, and 33 to 38.

Claim 39

Claim 39 depends on claim 1 and should be allowed for the same reasons as discussed above with reference to claim 1. Furthermore, claim 39 recites:

"monitoring a state of a buffer containing the information segment or the first representation and performing the editing so that the buffer does not overflow".

The Examiner has referred to a buffer RAM (Random Access Memory) of Figure 59A of the Fujino *et al.* reference as disclosure for the above claim feature. The Examiner has simply identified a buffer in Figure 59A; however, the Examiner has not identified any text in the Fujino *et al.* reference indicating "monitoring a state of a buffer containing the information segment or the first representation and performing the editing so that the buffer does not overflow". In particular, the description of Figure 59A is given in column 35, lines

4 to 30 of the Fujino *et al.* reference and there is no such disclosure in that passage.

The Board of Patent Appeals and Interferences is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claim 39.

Claim 40

Claim 40 depends on claim 1 and should be allowed for the same reasons as discussed above with reference to claim 1. Furthermore, claim 40 recites:

“performing the editing at least long enough to compensate for a resource acquisition time”.

The Examiner has referred to column 7, lines 43 to 51 of the Fujino *et al.* reference as disclosure for this claim feature. With respect, this passage discloses how “only side information in a core information part is transmitted for silent sections, while total data including the supplementary information part are transmitted for speech sections. During discarding because of congestion, lighter bits in the supplementary information part are sequentially discarded, thus improving the communication efficiency and permitting compressed transmission of various control data”.

With respect, the discarding referred to in this passage is not disclosed as discarding to compensate for a resource acquisition time. As such, the passage referred to by the Examiner does not disclose the above claim feature.

The Board of Patent Appeals and Interferences is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claim 40.

Claim 43

Claim 43 depends on claim 1 and should be allowed for the same reasons as discussed above with reference to claim 1. Furthermore, claim 43 recites:

“requesting the transmission resources from the multi-access system and receiving a resource allocation from the multi-access system after the resource allocation delays”.

The Examiner has referred to column 6, lines 1 to 25 of the Kanerva *et al.* reference as disclosure for this claim feature. With respect, this passage refers to how in a system, "the data link is established between a mobile station (MS) network terminal TAF (Terminal Adaptation Function) 31 and a network adapter IWF (Interworking Function) 41 (see Figure 1 of the Kanerva *et al.* reference) in the fixed network. The data link is a circuit-switch connection which reserves one (or more) traffic channel(s) from the radio interface for a duration of a connection".

In particular, what are being reserved here are traffic channels and there is no reference to any resource allocation delays. As such, there is no disclosure of any requesting the transmission resources from the multi-access system and receiving a resource allocation from the multi-access system "after the resource allocation delays" [emphasis added]. Instead, the traffic channels are either all used or a subset of the traffic channels is used.

The Board of Patent Appeals and Interferences is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claim 43.

Claims 41, 42, and 44

Claims 41, 42, and 44 each depend indirectly upon claim 27 and should be allowed for the same reasons as discussed above with reference to claim 27. Applicant notes that the Examiner has cited both the Fujino *et al.* reference and the Kanerva *et al.* reference against independent claim 27, but has only cited the Fujino *et al.* reference and Applicant's admitted prior art against claim 32 (see paragraph 7 of the Office Action). Since the Examiner has not cited the Kanerva *et al.* reference against claim 32, Applicant submits that the Examiner's rejection of claim 32 is inappropriate. Furthermore, since claims 41, 42, and 44 depend on claim 32 and the Examiner has not cited Applicant's admitted prior art against claims 41, 42, and 44, Applicant submits that the Examiner's rejection of claims 41, 42, and 44 is inappropriate.

The Examiner is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claims 41, 42, and 44.

Second Ground of Rejection

In paragraph 6 of the Detailed Action, the Examiner has rejected claims 7-11 under 35 U.S.C. 103(a) as being unpatentable over the Fujino *et al.* reference in view of the Kanerva *et al.* reference, and further in view of the book entitled "Wireless Communications Principles and Practice" (Rappaport). In response, Applicant respectfully submits that claims 7-11 are patentable over the Fujino *et al.* reference in view of the Kanerva *et al.* reference, and further in view of Rappaport for at least their dependence upon claim 1. Furthermore, Applicant submits additional arguments in favour of the patentability of claims 7-11 as outlined below.

Claim 7

Applicant has argued above that the Fujino *et al.* and Kanerva *et al.* references do not disclose all of the features of base claim 1. Applicant submits that the Rappaport reference fails to disclose the features of base claim 1 that the Fujino *et al.* and Kanerva *et al.* references fail to disclose. Therefore, Applicant submits that the *prima facie* obviousness requirement that the references teach all of the claimed limitations has not been satisfied in respect of claim 7.

Regarding the *prima facie* obviousness requirement for motivation to combine, as discussed above with reference to claim 1, claim 1 recites "editing and buffering...to produce a second representation, and claim 7 recites:

"wherein the buffering and editing comprises buffering and then editing".

In the Fujino *et al.* reference it makes no sense to perform the buffering step referred to by the Examiner and then perform the editing step referred to by the Examiner. In particular, in his rejection of claim 1 the Examiner has referred to element 140 in which there is a speed difference absorption buffer 142 for the buffering step (see Figure 35 of the Fujino *et al.* reference). As shown in Figure 36 of the Fujino *et al.* reference, the buffering is provided by the speed difference absorption buffer 142 which, as discussed above, is used as a transmission holding buffer. In particular, as disclosed in column 25, lines 36 to 42 the speed difference absorption buffer 142 absorbs a difference between multiplexed frames

inputted at speed V_1 from a multiplexer side and a transmission speed V_2 to a packet network side. Applicant submits that there is no disclosure of a buffer operable to buffer each shortened information segment until transmission resources are allocated to produce a buffered information segment, for the same reasons as discussed above with reference to claim 1. With respect, modifying the Fujino *et al.* reference to apply the speed difference absorption buffer 142 before any editing simply makes no sense as there would be no existing multiplexed frames. As such, buffering and then editing requires a modification to the Fujino *et al.* reference that renders the system of Fujino *et al.* unworkable and therefore teaches away from the Fujino *et al.* reference. Under section "2142.01 Suggestion or motivation to Modify References [R-1]" of the Manual of Patent Examining Procedure (MPEP), a "proposed modification cannot change the principle of operation of a reference". Applicant submits that the Examiner has not complied with this requirement for at least the aforementioned reasons. Therefore, the motivation to combine requirement for a *prima facie* case of obviousness is not satisfied.

Thus, none of the requirements for a *prima facie* case of obviousness are satisfied.

The Board of Patent Appeals and Interferences is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claim 7.

Claims 8 to 11

Claims 8 to 11 each depend directly or indirectly on claim 7 and should be allowed for the same reasons as discussed above with reference to claim 7. The Board of Patent Appeals and Interferences is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claims 8 to 11.

Third Ground of Rejection

In paragraph 7 of the Detailed Action, the Examiner has rejected claims 18-21 and 31-32 under 35 U.S.C. 103(a) as being unpatentable over the Fujino *et al.* reference in view of Applicant's admitted prior art (Figure 1). In response, Applicant respectfully submits that claims 18-21 and 31-32 are patentable over the Fujino *et al.* reference in view of Applicant's admitted prior art (Figure 1) for at least their dependence upon one of claims 1

and 27. Furthermore, Applicant submits additional arguments in favour of the patentability of claims 18-21 and 31-32 as outlined below.

To begin, it is noted that in Applicant's response dated February 19, Applicant argued against Figure 1 and Figure 2 being Applicant admitted prior art. In subsequent Office Actions the Examiner has failed to recognize this. Thus, at the outset, the combination is improper since one of the two references is not in fact prior art.

In the discussion that follows, reference will be made to Applicant admitted prior art (Figure 1) (hereinafter referred to as AAPA) for convenience, but it is to be understood that Applicant does not admit to this being prior art.

1) Features of Claims 18-21 and 31-32

Applicant respectfully submits that the teachings of the Fujino *et al.* reference together with the teachings of AAPA does not teach all claim limitations of any of claims 18-21 and 31-32 for at least their dependence upon on one of claims 1 and 27. Furthermore, Applicant submits that the rejection of claims 18 to 21 and 31 to 32 is inappropriate. Applicant notes that each one of claims 18 to 21 and 31 to 32 depends directly or indirectly on one of claims 1 and 27. Applicant notes that the Examiner has cited both the Fujino *et al.* reference and the Kanerva *et al.* reference against base claims 1 and 27, but does not cite the Kanerva *et al.* reference against dependent claims 18 to 21 and 31 to 32. For at least this reason, Applicant submits that the Examiner's rejection of claims 18 to 21 and 31 to 32 is inappropriate. Furthermore, the Examiner has admitted that not all of the claim features of base claims 1 and 27 are found in the Fujino *et al.* reference and Applicant submits that these features are also not disclosed in AAPA .

For at least the aforementioned reasons, Applicant submits that the first requirement for establishing a prima facie case of obviousness has not been met.

3) Motivation to combine references

Applicant submits that the Examiner has not established motivation for combining the Fujino *et al.* reference and AAPA . The Examiner states that "it would have been obvious to

one of ordinary skill in the art at the time of the invention to adapt a wireless telecommunication for sending information from a mobile station to base station using RF transmission channel known way because to achieve a mobility in the communication sector. It is respectfully submitted this statement does not provide the required motivation to combine. Furthermore, it is submitted that there is no motivation to combine for at least the reasons detailed below.

It is well established that motivation to combine can come from: the references themselves, the problem being solved, or the knowledge of the person skilled in the art. In this case, the references do not refer to each other so motivation to combine does not come from the references themselves. A completely different problem is being addressed. The Applicant's admitted prior art only discusses a multi-access cellular wireless network. Fujino discussed optimizing multiplexing over a link. There is absolutely no commonality in the problem being solved. As for the knowledge of one skilled in the art, the Examiner has not established that a person trying to deal with resource allocation delay in a multi-access system would also be aware of link multiplexing techniques.

Applicant submits that there can be no motivation to combine the Fujino *et al.* reference and AAPA, as such a combination requires significant modification to their teachings. Referring to Section "2142.01 Suggestion or motivation to Modify References [R-1]" of the Manual of Patent Examining Procedure (MPEP), a "proposed modification cannot change the principle of operation of a reference". Applicant submits that the Examiner has not conformed to this for at least the reasons outlined below.

As previously discussed, Fujino teaches multiplexing to get more throughput on a channel. Multiplexing is performed by a multiplexing unit, such as the multiplexing unit shown in Figure 48, and is not performed at the source. Applicant's admitted prior art teaches a multi-access wireless system with reference to Figure 1. Each base station (see reference numbers 34, 36, 38, 40, 42, 44) may have many mobile stations within its respective cell for communication. In AAPA, multiplexing of signals received from the mobile stations could not be performed until receipt at the base station since until then the signals are physically separate. Multiplexing at the base station would not deal with the resource allocation delay problem experienced by mobile stations.

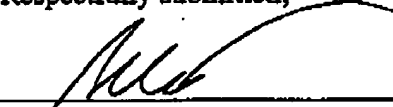
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For at least the aforementioned reasons, Applicant submits that claims 18-21 and 31-32 are patentable over the Fujino *et al.* reference in view of Applicant's admitted prior art. The Board of Patent Appeals and Interferences is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claims 18 to 21 and 31 to 32.

Favourable consideration and allowance of the application is respectfully requested.

Respectfully submitted,

By


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Ottawa, Ontario, Canada
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RAB:PDB:kbc

Claims Appendix

1. A method of transmitting in a multi-access system comprising:

detecting the start of an information segment being generated in real-time;

editing and buffering the information segment or a first representation thereof to produce a second representation; and

after transmission resources have been allocated, starting to transmit the second representation;

wherein the editing and buffering is done to compensate for transmission resource allocation delays.
2. The method of claim 1 wherein editing and buffering comprises editing and then buffering.
3. The method of claim 2 wherein editing is done on the information segment to produce a shortened information segment.
4. The method of claim 2 wherein editing is done on the first representation which is a framed version of the information segment to produce a shortened information segment.
5. The method of claim 3 wherein buffering is done on the shortened information segment to produce the second representation.
6. The method of claim 3 wherein buffering is done on a frame version of the shortened information segment to produce the second representation.
7. The method of claim 1 wherein buffering and editing comprises buffering and then editing.
8. The method of claim 7 wherein buffering is done on the information segment to produce a buffered information segment.
9. The method of claim 7 wherein buffering is done on the first representation which is a

framed version of the information segment to produce a buffered information segment.

10. The method of claim 8 wherein editing is done on the buffered information segment to produce a shortened information segment.

11. The method of claim 8 wherein editing is done on the first representation which is a framed version of the buffered information segment to produce a shortened information segment.

12. The method of claim 1 wherein upon detecting the start of the information segment, the method further comprises immediately requesting transmission resources to transmit the information segment.

13. The method of claim 6 wherein editing the information segment to produce a shortened information segment comprises time compressing the information segment.

14. The method of claim 13 wherein time compressing the information segment comprises removing repetitions and/or short pauses present in the segment.

15. The method of claim 1 wherein before transmitting the second representation, the method further comprises passing the second representation through a frame erasure concealment unit to prevent corruption.

16. The method of claim 15 wherein before transmitting the second representation, the method further comprises placing the second representation in one or more packets for transmission.

18. The method of claim 1 wherein the multi-access system is a multi-access wireless system.

19. The method of claim 18 wherein the information segment is transmitted from a mobile station to a base station.

20. The method of claim 19 wherein the transmission resources consist of one or more information channels.

21. The method of claim 20 wherein each information channel is a radio frequency (RF) channel.
22. The method of claim 1 wherein the information segment is a speech segment.
23. The method of claim 4 wherein editing the framed version of the information segment to produce a shortened information segment comprises removing redundant frames.
24. The method of claim 23 wherein removing redundant frames comprises removing frames which contain repetitions and/or short pauses.
25. The method of claim 24 wherein before transmitting the second representation, the method further comprises passing the second representation through a frame erasure concealment unit to prevent corruption.
26. The method of claim 25 wherein before transmitting the second representation, the method further comprises placing the second representation in one or more packets for transmission.
27. An apparatus to transmit information in a multi-access system, the apparatus comprising:
- an information detector operable to detect incoming information segments to transmit;
 - an information editor operable to edit each information segment detected so as to produce a respective shortened information segment;
 - a buffer operable to buffer each shortened information segment until transmission resources are allocated to produce a buffered information segment; and
 - a transmitter operable to transmit each buffered information segment.
28. The apparatus of claim 27 wherein for editing each information segment detected so as to produce a respective shortened information segment, the information editor is operable to time compress each information segment.

29. The apparatus of claim 27 further comprising a coder connected to the information editor and operable to code each shortened information segment into a respective plurality of frames.
31. A wireless transmitter comprising the apparatus of claim 27.
32. A mobile station comprising the wireless transmitter of claim 31.
33. The apparatus of claim 27 wherein each information segment is a speech segment.
34. The apparatus of claim 33 wherein the information detector is a voice activity detector, the information editor is a speech pause/edit unit and the coder is a speech coder.
35. The apparatus of claim 34 further comprising a frame erasure concealment unit connected to receive each speech segment buffered and operable to prevent corruption before transmission.
36. The apparatus of claim 35 further comprising a protocol handler connected between the frame erasure concealment unit and the transmitter, the protocol handler being operable to place each speech segment buffered in one or more packets for transmission to a node.
37. The apparatus of claim 27 further comprising a coder operable to code each information segment detected into a respective plurality of frames.
38. The apparatus of claim 37 wherein for editing each information segment detected so as to produce a respective shortened information segment, the information editor is operable for each information segment to remove redundant frames from the respective plurality of frames.
39. A method according to claim 1 comprising monitoring a state of a buffer containing the information segment or the first representation and performing the editing so that the buffer does not overflow.
40. A method according to claim 1 comprising performing the editing at least long enough to compensate for a resource acquisition time.

41. A mobile station according to claim 32 wherein the information editor is adapted to monitor the state of the buffer and adapt the edit of each information segment detected so that the buffer does not overflow.

42. A mobile station according to claim 32 wherein the information editor is adapted to operate at least long enough to compensate for a resource acquisition time at the mobile station.

43. A method according to claim 1 comprising requesting the transmission resources from the multi-access system and receiving a resource allocation from the multi-access system after the resource allocation delays.

44. A mobile station according to claim 32 wherein the information editor is further adapted to request the transmission resources from the multi-access system, the transmission resources being allocated by the multi-access system after resource allocation delays.

Evidence Appendix

This appendix is empty, as there has been no evidence submitted pursuant to Sections. 1.130, 1.131, or 1.132 of 37 CFR.

Related Proceedings Appendix

This appendix is empty, as there are no related appeals or interferences that will directly affect, be directly affected by or have a bearing on the present appeal.